ENGINEERING NEWS-RECORD

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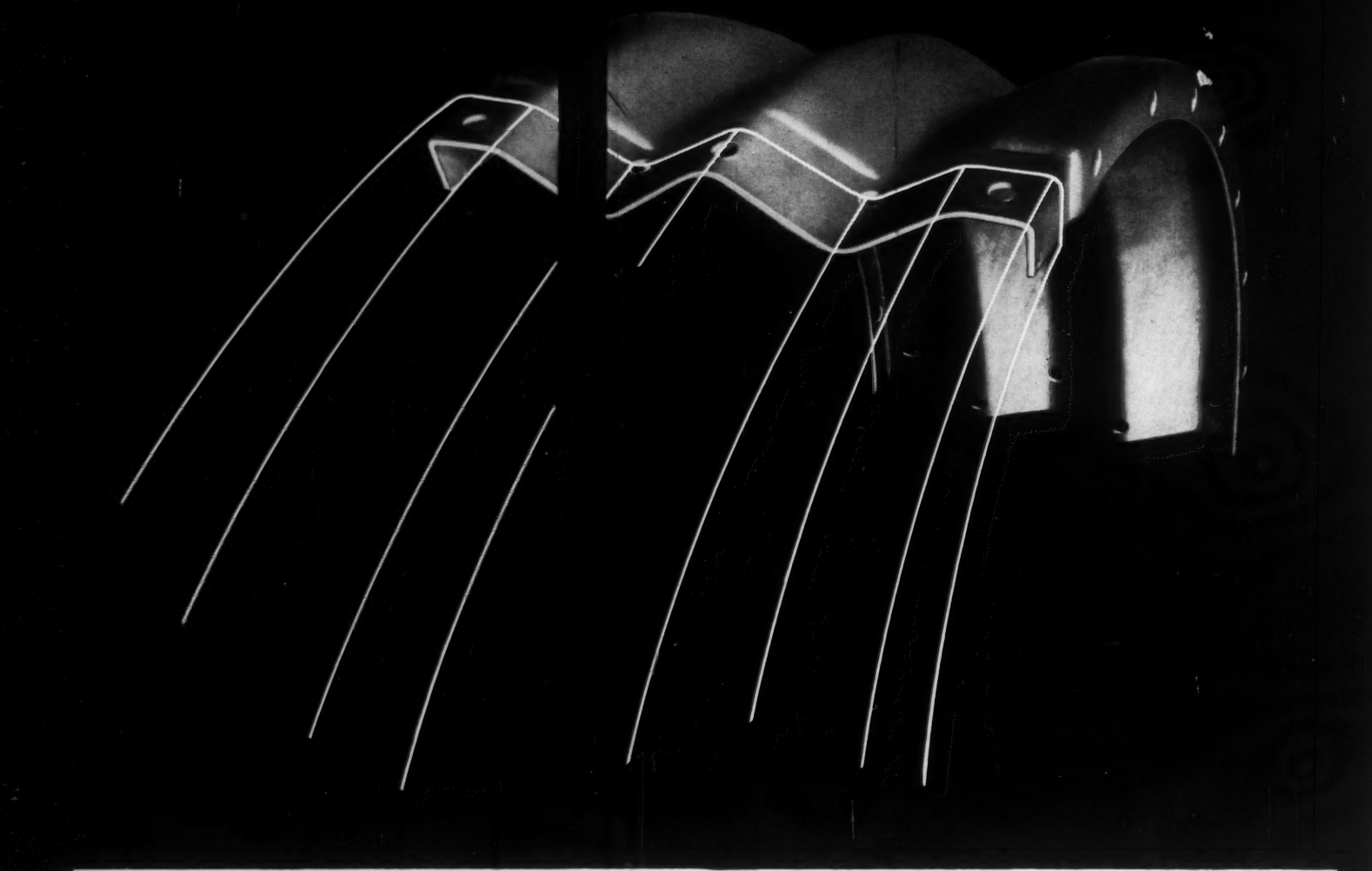

"Overlapping grip" gives tunnels more strength

When heavy timbers were used for tunneling, the process was inefficient and often hazardous. No one could tell the exact strength of even the heaviest beam.

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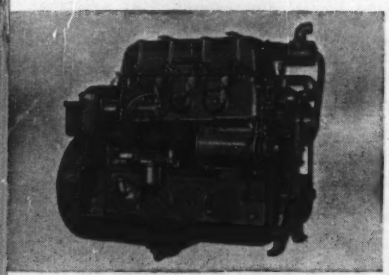
THE P&H DIESEL

how it kicked some old ideas in the teeth



eries C-18 P&H Diesels — now with *single*, ally self-contained fuel pump; perfect timing nd balance for each cylinder. 30 to 255 horse- ower, two-cycle. 2, 3, 4, 6-cylinder models, peeds up to 1800 r.p.m. Stationary, mobile, arine, diesel-generating sets.

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Robert F. Boger
Publisher

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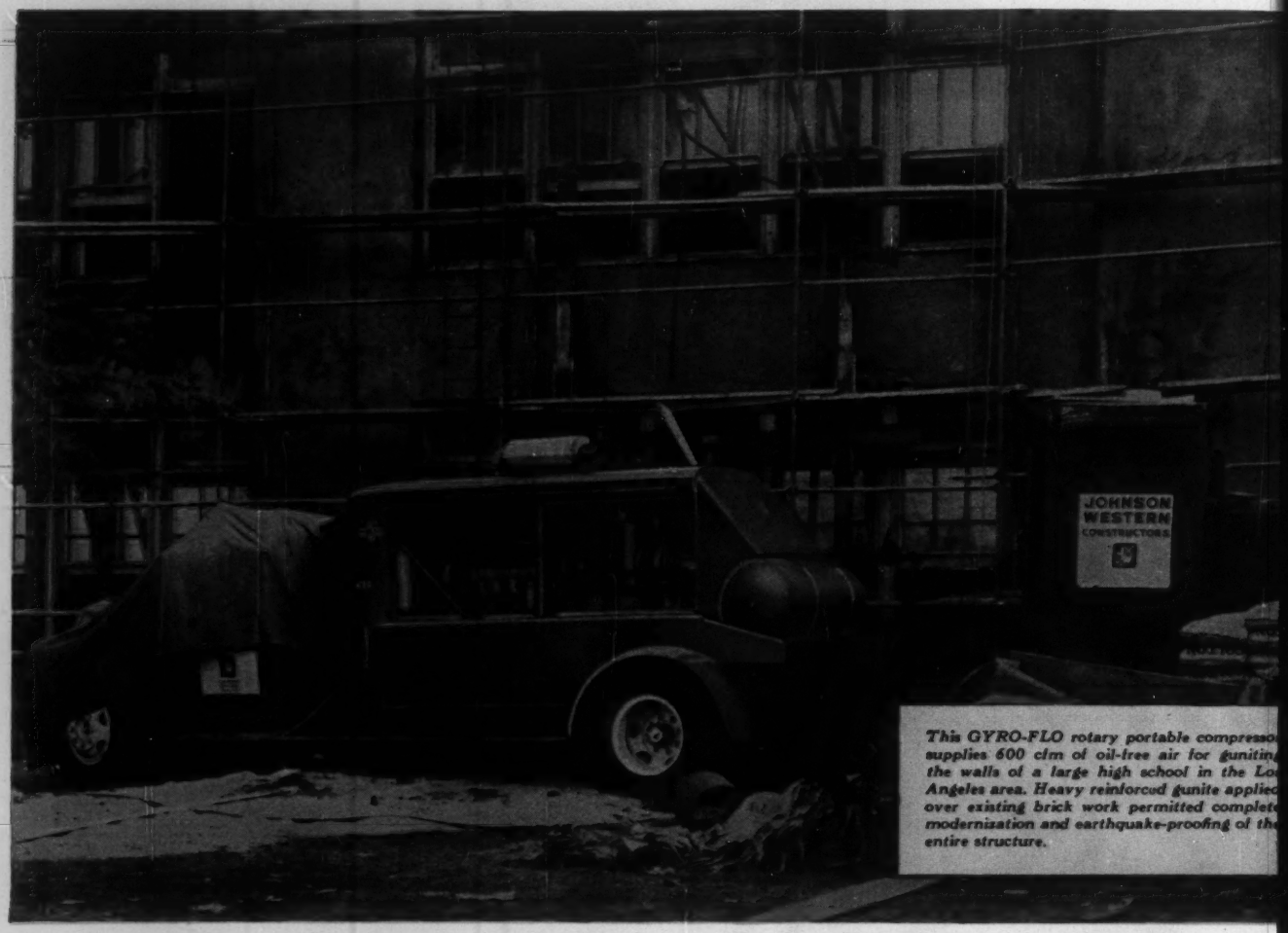

This GYRO-FLO rotary portable compresso supplies 600 cfm of oil-free air for guniting the walls of a large high school in the Lo Angeles area. Heavy reinforced gunite applied over existing brick work permitted complete modernization and earthquake-proofing of the entire structure.

Johnson Western Constructors are winning the battle of construction costs with new and improved guniting equipment. Using air power from Ingersoll-Rand GYRO-FLO 600 compressors, these guns are blasting away on a wide range of concrete construction projects.

Extra "fire power" obtained from the 600-cfm GYRO-FLO constitutes a major improvement in the efficiency of the gunite process. The instantly variable regulation of the GYRO-FLO gives the operator constant air pressure, reducing clogging of the hose and "rebound" of sand. Johnson Western engineers estimate that by converting from reciprocating 500-cfm units to GYRO-FLO 600s, they can shoot from 30 to 40 more sacks of cement per day—a gain of 20% in guniting capacity.

There are other advantages, too. One is the compactness and light-weight of the GYRO-FLO unit. It can be mounted on a single truck-trailer body for greater mobility. Another is its exceptional freedom from maintenance. According to Johnson Western, the life expectancy of a GYRO-FLO 600 in guniting work is about 11,000 hours without compressor repairs—equivalent to approximately *four years* of trouble-free service!

Based on this performance, the Gunite Division of Johnson Western is using GYRO-FLO compressors for *all air power requirements.*

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Johnson Western finds that swimming pools like this are a natural for the GYRO-FLO gunite team, as the sprayed concrete is highly impervious to moisture and no costly contour forms are required.

GYRO-FLO 600s provide air power for construction of the second barrel of the 60-inch San Diego-San Vicente Aqueduct of Rainbow, California. Here the ready mobility of the truck-mounted compressors was a big asset.

Ten-inch gunite spillway walls for Livingston Dam in Los Angeles, California, are applied directly to the earth banks. Two GYRO-FLO 600s supplied the air power for this big job by Johnson Western Constructors.

St. Luke's Church in Temple City shows how reinforced Gunite powered by GYRO-FLO 600 was used, not only to provide a Class A structure but also to achieve the effect of mission style architecture.

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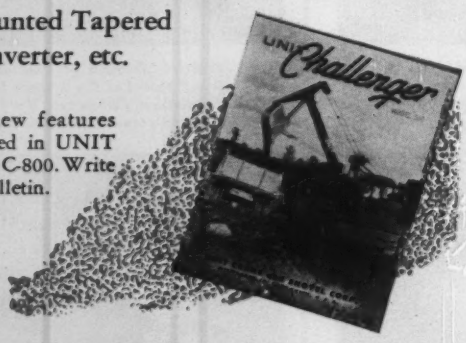

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READER COMMENT

Correction

SIR: The members of this organization have called our attention to an article published by you in your issue of Jan. 27, 1955 (p. 130) as follows:

> "Cleveland Local 18 of the Hoisting and Operating Engineers Union and other union groups were associated with a series of 33 bombings, destruction of construction equipment and other illegal practices on excavation projects in the Cleveland area."

On behalf of our membership and of this organization we emphatically deny the truth of the foregoing statement and assert that it is false and malicious. Its publication and distribution has seriously and materially affected the social standing, working conditions, income and employee-employer relations of our members, as well as those of the organization itself.

Speaking for our people, we request that you take prompt action to undo the wrong and publish forthwith a retraction.

THE INTERNATIONAL UNION OF OPERATING ENGINEERS
LOCAL UNION NO. 18
Cleveland
By: B. Hagesfeld, Secretary

[EDITOR'S NOTE: The news report to which Local 18 takes exception was a paragraph of a report that attempted to summarize the findings of a Special Anti-Racketeering Subcommittee of the 83rd Congress, as they related to the construction industry.

We used the expression "associated with a series of . . ." as a means of indicating that a witness before the committee implied by his testimony that the organizations with which his company had been "having difficulties"—the Excavating Contractors Association and Local 18 of the Hoisting and Operating Engineers Union — were responsible for destroying his equipment, but that this witness was unable to produce evidence that these organizations actually were responsible for the bombing.

Certainly, there was no intent on the part of Engineering News Record to charge Local 18 or any of its members with responsibility for the bombing.]

A-Bomb Test of Buildings

SIR: In connection with Engineering News-Record's coverage of the recent atomic test at Yucca Flat and the

(*Continued on page 12*)

3 big reasons why:

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ENGINEER: E. J. Barstow & Associates, Akron, Ohio

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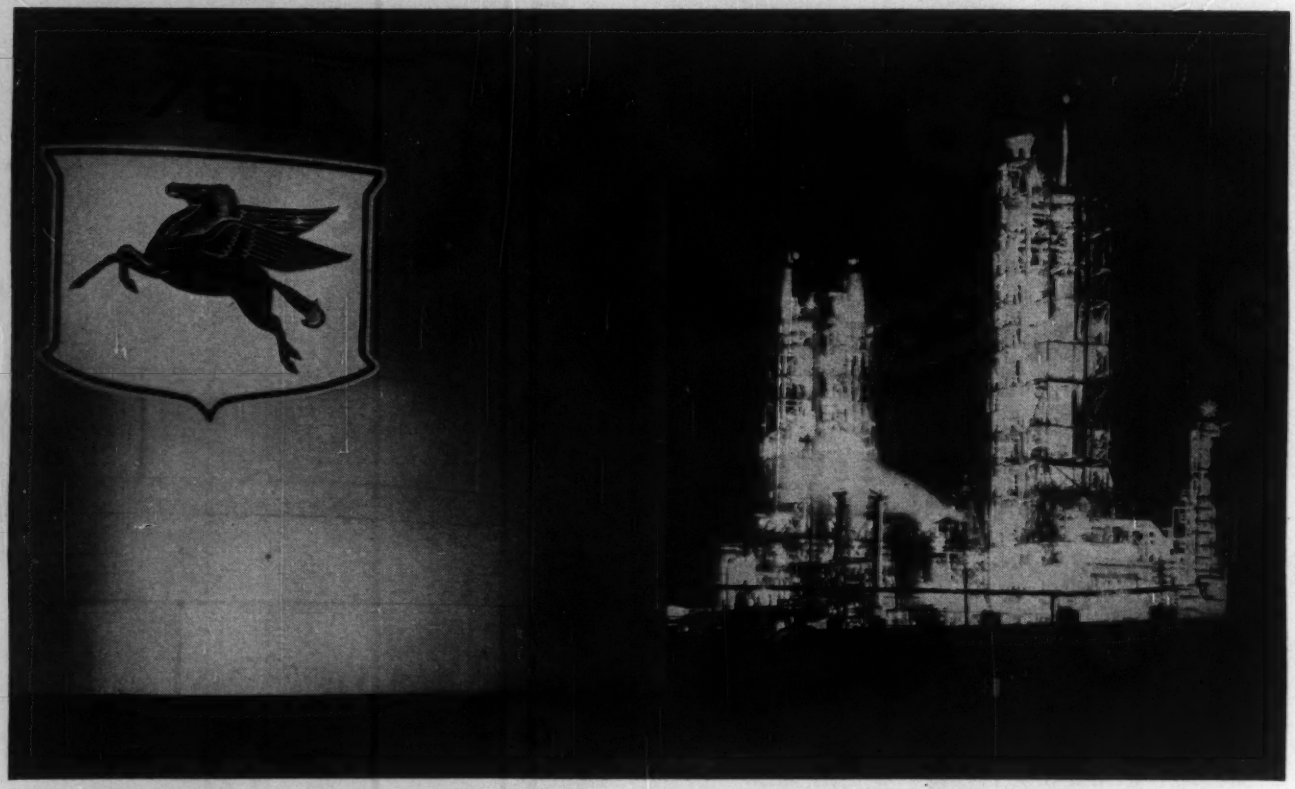

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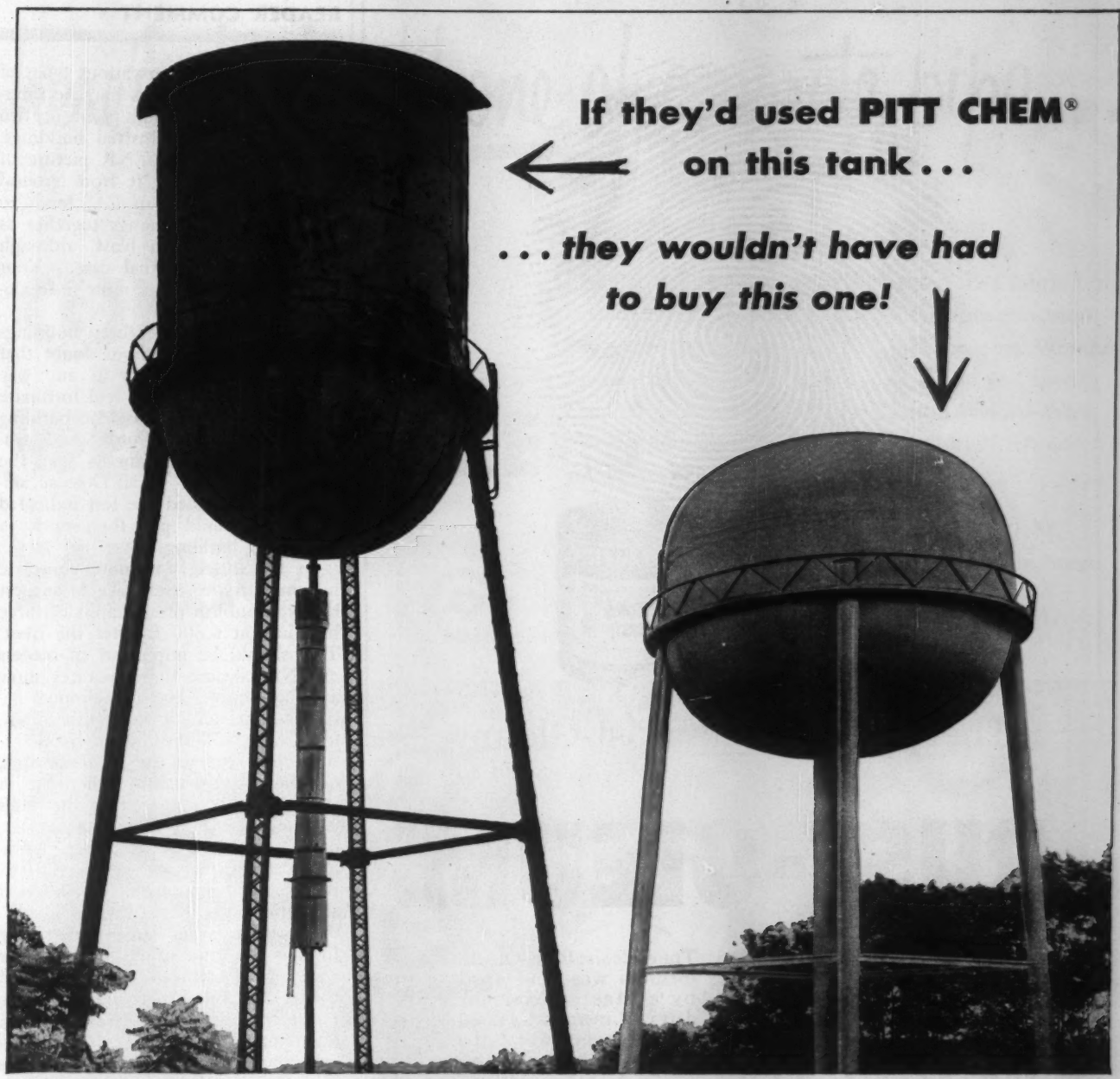

THEY TRIED to protect the water tank on the left with ordinary paint. That's why they had to recently erect its replacement on the right!

But *this* time they beat corrosion to the punch. A *Pitt Chem* engineer was called in prior to actual construction. Here's what he recommended: (1) Protect the tank interior with *Pitt Chem* 104—a tough, durable, water resistant coating that imparts no taste or odor to water. (2) Protect exterior tank surfaces with *Pitt Chem* 209 Alkyd Resin Aluminum Coating to combine attractive appearance with maximum resistance to atmospheric corrosion. (3) Protect the water pipe mains above ground and below with *Pitt Chem* 101, a thick, heavy duty tar base coating.

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READER COMMENT

effect of the blast on various types of structures, your readers may be interested in an additional point or two about the metal industrial buildings. The caption of the ENR picture of buildings at 15,000 ft from ground zero (May 19 issue, p. 24) tends to lump all metal buildings together as reacting similarly to blast, although this is far from actual case. Your story of May 12 was more informative.

Photograph of the three buildings at 6,800 ft shows without doubt that only one building was in any way useful after blast. We feel fortunate indeed that it was the Behlan building and that it would afford "good protection from the elements," as the official report said. Civil Defense officials who witnessed the test indicated that they would put their faith in the center building.

In the interest of more complete information we would like to suggest that you publish photographs of three buildings at 6,800 ft after the blast. This should be important to readers of ENR because those pictures show a structure of new and unique design and its ability to withstand unusual force. Test shows there is unsuspected strength in a monocoque, or shell-like structure where main strength is incorporated in the walls themselves. This design makes use of comparatively heavy gage galvanized sheet steel with deep corrugations and demonstrated inherent strength.

It was a rather large undertaking for our firm and others to cooperate with Civil Defense in these tests, and the results should be of special interest to your readers and therefore deserving of even more complete coverage by your publication, since it is a leader in its field.

WALTER BEHLEN, *President,*
Behlen Manufacturing Company
Columbus, Neb.

CALENDAR

Construction Industries Exposition and Home Show, Pan Pacific Auditorium, Los Angeles, Calif., June 9-19.

American Water Works Association, convention, Conrad Hilton Hotel, Chicago, June 12-17.

American Society of Civil Engineers, Spring convention, Hotel Jefferson, St. Louis, June 14-17.

The American Institute of Architects, annual convention, Hotel Radisson, Minneapolis, Minn., June 20-24.

American Society for Engineering Education, annual meeting, Pennsylvania State University, State College, Pa., June 20-24.

American Society for Testing Materials, annual meeting, Chalfonte-Haddon Hall, Atlantic City, N. J., June 26-July 1.

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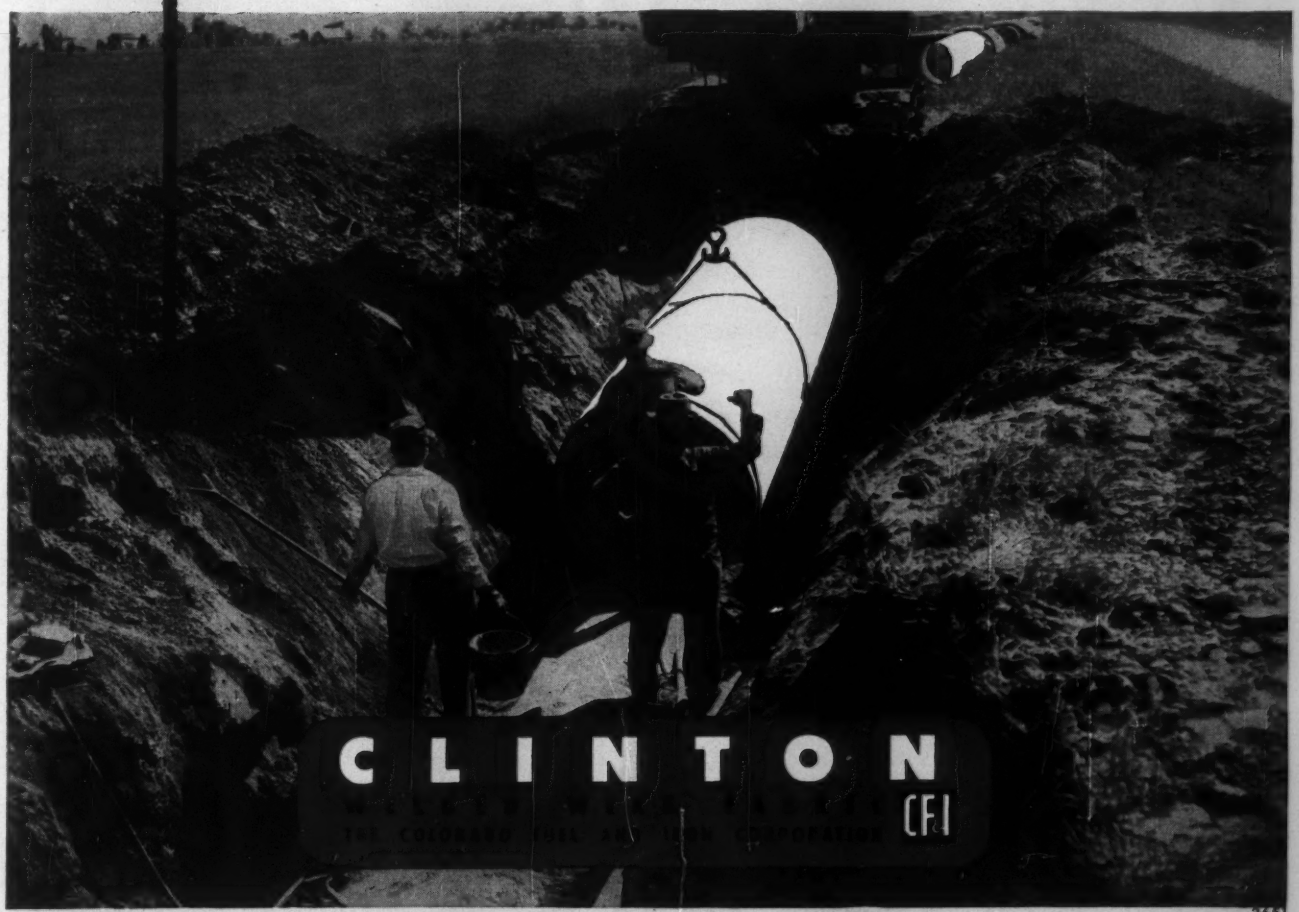

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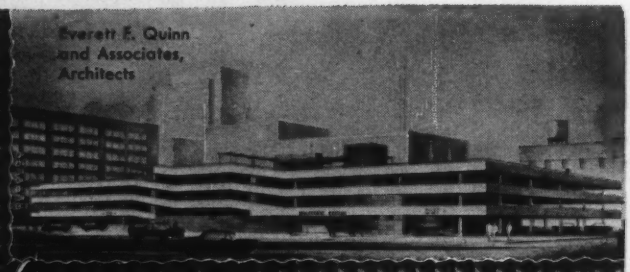
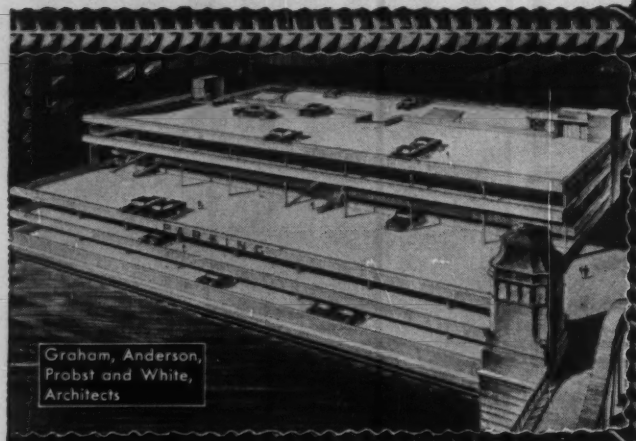
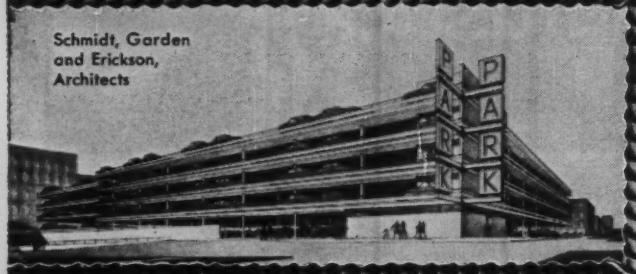

Everett E. Quinn and Associates, Architects


Graham, Anderson, Probst and White, Architects

Contractor Beats Bonus Schedules



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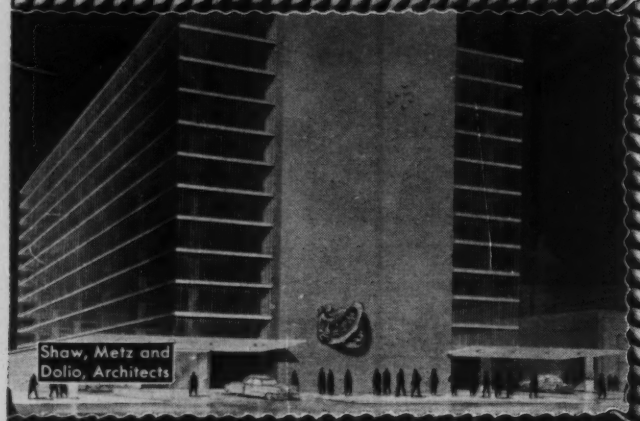
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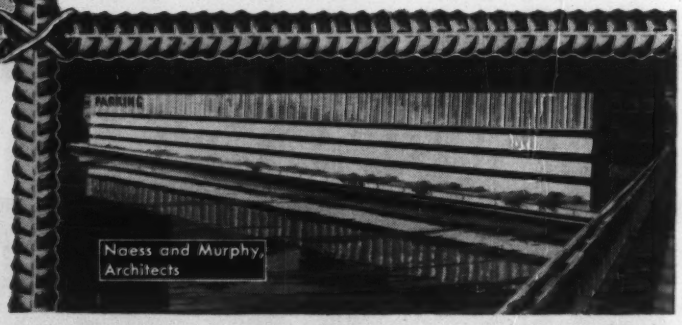
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ENGINEERING NEWS-RECORD

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THE CONSTRUCTION WEEK

WRIGHT STUMPS BUILDERS—Contractors are having a hard time trying to come up with bids on Frank Lloyd Wright's design for a $750,000 synagogue in the Philadelphia suburb of Elkins Park. Congregation officials drew a blank at the bid opening last week. Interested builders admitted privately that the famed architect's plans were too difficult for their estimators to cope with, at least by the plan deadline. Result is that new bids will be asked after Wright holds a seminar with prospective bidders. Described by Wright "as a coherent statement of worship," the synagogue will have a pyramidal dome designed "along the lines of an Indian tepee" rising out of a basic hexagon.

RIGHT-OF-WAY, RIGHT AWAY—Kentucky's Court of Appeals has invalidated a 1954 amendment to the state's turnpike enabling act that could have delayed jury trials of land condemnation suits for up to two years, or until a road was completed, whichever was soonest.

The 1950 act, under which the $30-million Louisville-Elizabethtown toll road is now being built, enables landowners dissatisfied with what the state offers for right-of-way to ask for a jury determination of the value of the land at the time it is condemned.

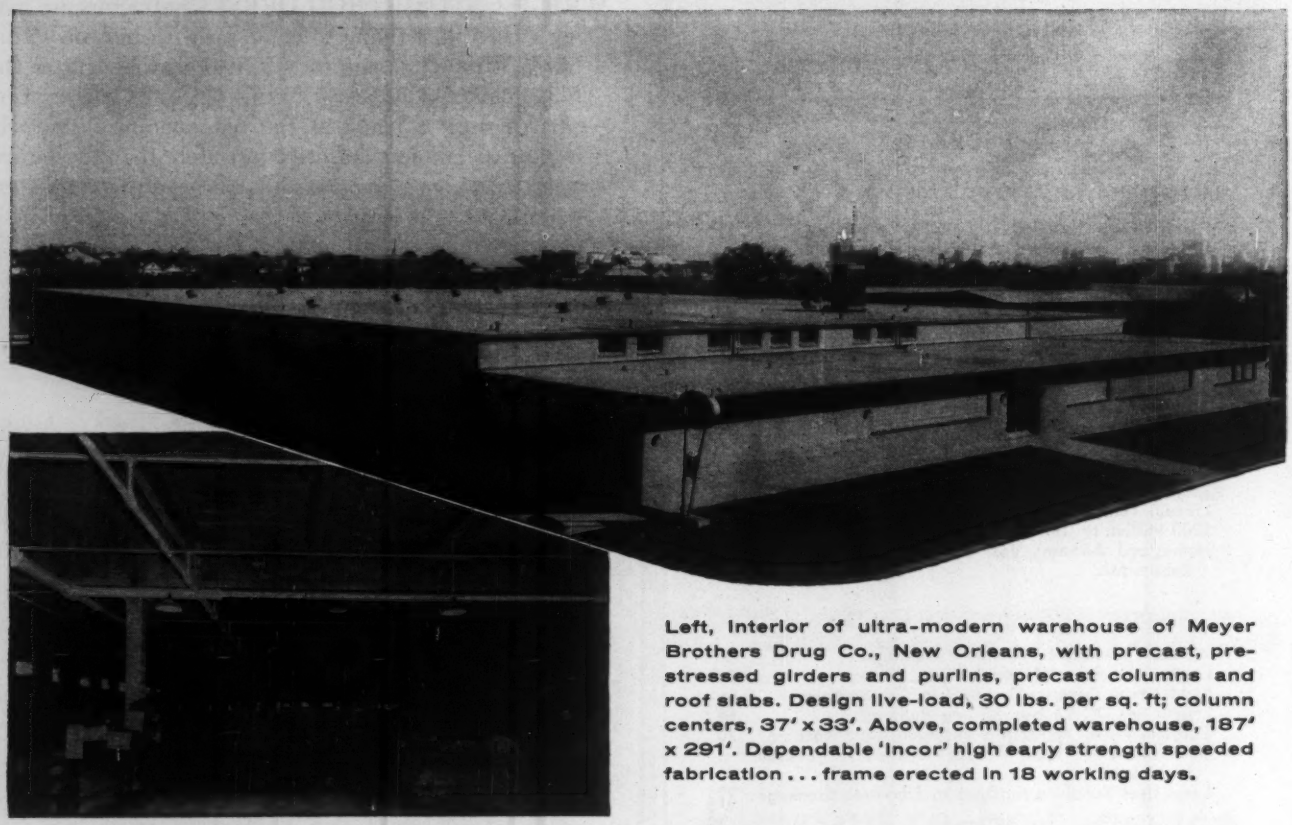
POLLUTION MYSTERY UNSOLVED—A four-month investigation of Brandywine River failed to determine origin of a mysterious phenol substance which has fouled the Wilmington, Del., water supply three times this year. But, investigators did discover a large underground cavern along side a sewer siphon, which the state's water pollution commission termed a "major peril" because it could act as sump for spillage at times of increased flow.

GOOD IDEA, ANYWAY—A plan that would extend civil service protection to 1,000 top-paying technical jobs, including state highway engineers and engineering personnel in all other state departments, is reported to be under consideration by Pennsylvania's Democratic Gov. George M. Leader.

But, any such proposal can be expected to raise a storm among Democratic county chairmen now engaged in staking out claims to some 45,000 non-civil service jobs held by Republicans. Leader's predecessor, GOP Gov. John S. Fine put forth a similar proposal in behalf of highway engineers late in his administration but nothing came of it.

LAND CLAIM SNARLS PROJECTS—Work on the downtown Pittsburgh interchange of the Penn-Lincoln Parkway has been interrupted as a result of three local taxing bodies refusing to give clear title to the state for five small parcels of their land. The city, school district and Allegheny County are seeking remuneration for the parcels having a total valuation of $100,000.

Precast, Prestressed 'Incor' Concrete Warehouse



Left, interior of ultra-modern warehouse of Meyer Brothers Drug Co., New Orleans, with precast, prestressed girders and purlins, precast columns and roof slabs. Design live-load, 30 lbs. per sq. ft; column centers, 37′ x 33′. Above, completed warehouse, 187′ x 291′. Dependable 'Incor' high early strength speeded fabrication . . . frame erected in 18 working days.

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WASHINGTON OBSERVER

Step-up in bomber orders may mean new boost for military airbase construction. Already, the Defense Department has asked for additional money to modify three bases—at El Paso, Ft. Worth, and Puerto Rico. They'll be re-designed to handle the B-52s as the planes start coming off the line faster.

The multi-billion military authorization bill takes the B-52 into account. When the bill comes out of the Armed Services Comimttees it's expected to give a tip-off as to just how much more construction will have to be added to build needed bases to accommodate the B-52s. Plans now call for 11 wings to be in the air one year earlier than originally scheduled.

Big problem is enlarging runways since the new jet bomber at sea level needs some 13,000 ft of strip 300 ft wide. Much more construction would be needed except for the fact that the B-52 has castered landing gear—which obviates the need for runways in more than one direction to adjust to wind conditions.

•

Water resources recommendations of Hoover Commission will be trimmed considerably before they are sent to Congress. This is the Hoover report that has probably the most political controversy involved.

Commission has vetoed task force idea of selling federal power plants or leasing them to private utilities. This suggestion which leaked out some weeks back was one of the reasons behind the big furor in the papers as Democrats and Republicans sparred over the politics of it.

Reports say Hoover will recommend putting federal power under FPC just as private utilities are regulated by that agency. The thought here is to make federal and private power management subject to same requirements.

Bond financing of federal power facilities such as that now being recommended for TVA, is also to be recommended by the group.

Establishment of a water resources board to advise federal officials on all water and hydropower developments is also suggested.

Final report isn't due out for some weeks yet. The political infighting has been the big factor behind the delay.

•

Inter-American Highway construction is getting new boost from Congress. Bills now going through are likely to result in authorization to close gaps in the road and authorize improvements in sub-standard sections. This affects links from southern border of Mexico to Panama City. Mexican portion is already completed.

New authorization would finish the highway in next three years by stepping up U.S. contributions. Key legislators are agreed on raising the present authorization to $75 million for the three-year period.

Appropriation for next year is expected to be increased by the Senate committee to $25 million required by the stepped-up schedule of construction.

•

Justice Department and FHA are going their own way on windfall cases against builders who they say profited unduly under the provisions of the rental housing law right after the war.

Justice Department has grand juries going in at least three cities—Washington, D. C., Brooklyn, N. Y., and Chicago, Ill. Washington jury is concentrating on Clyde Powell, one-time assistant commissioner in charge of rental housing. Others are looking into tax violations, perjury, bribery, and the like.

FHA Commissioner Mason is trying to recover windfall profits—that is, force corporations to elect an FHA board of directors which eventually would try to get back profits illegally distributed to owners.

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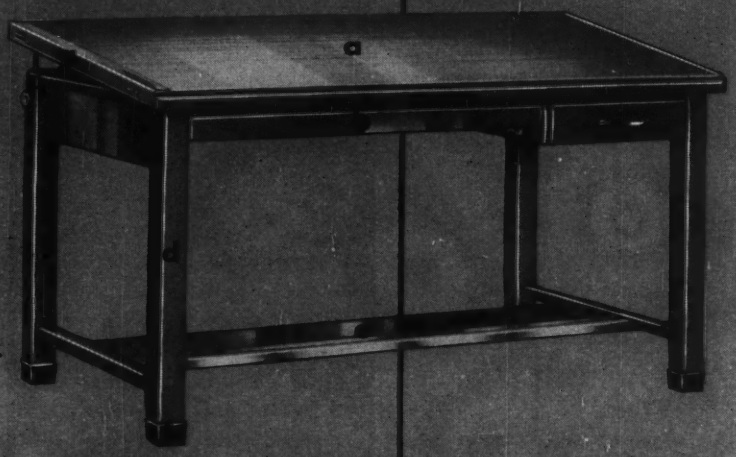

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Politics Played a Part . . .

House Group Cuts Funds for Public Works

In an action rather obviously colored by political considerations, the House Appropriations Committee last week slashed sharply at funds for federal construction work.

The committee cut Administration requests for funds totaling $1.8 billion by almost $500 million—a slash of 28%. The cuts affected construction activities of the Atomic Energy Commission, Tennessee Valley Authority, the Bureau of Reclamation, civil functions of the Corps of Engineers, and some of the regional power agencies.

There was ample evidence in the action of preoccupation with political battles—past and future. An example was in the heavy cut in funds for the atomic energy program, where funds were denied for a transmission line that would connect the controversial Dixon-Yates power plant in Arkansas with the TVA's grid.

Instead of approving the $6.5 million transmission line, the committee directed that the funds should be applied to construction of the equally controversial Fulton Steam Plant by TVA in western Tennessee. Observers said that—should the committee's action be upheld by Congress—the Dixon-Yates project will be impossible.

• **Power fight**—There was other evidence of the continuing bitter feelings over the Administration's "partnership" policy of power development by private enterprise where possible, or jointly by private and public agencies.

The committee restored a $6-million revolving fund for the Southwestern Power Administration that had been struck out by the 1953 Congress. Private power companies had charged that the funds were being used to finance controversial contracts between Southwestern Power and cooperative groups and so were accomplishing indirectly what Southwestern is directly forbidden to do—operate steam plants in competition with private enterprise.

TVA, however, stands also to take a substantial cut in its operating funds. It got $26.2 million—against an appropriation of $120 million last year.

Congressmen explained that TVA's construction program, started several years ago, is now nearing completion, and no new generation units are included in the 1956 estimates that have been presented by President Eisenhower.

The decrease in appropriations for AEC is deceptive (see table). Actually, the committee chopped $427 million from the money requested for the agency, but by transferring existing unobligated balances managed to reduce the net loss to $166.4 million.

• **Other action**—The House group approved $113.8 million for construction projects for the Reclamation Bureau—a reduction of $32.2 million from requests. Largest item okayed is $44.5 million for the Missouri River Basin, $15 million of which is earmarked for transmission lines and the remainder apportioned to eight projects in Kansas, Montana, Nebraska, South Dakota and Wyoming.

Limitations were imposed on some projects:

On the Colorado-Big Thompson, for example, $2.1 million was voted to provide for completion of construction of all features except the Big Thompson power plant, switchyard and transmission line, which was deferred.

A total of $11.3 million went to the Central Valley Project, including $1 million for starting construction on the $225 million Trinity River project, which had been authorized on a finding of feasibility by the Secretary of Interior, but which is now before Congress for reauthorization.

The committee denied $520,000 requested to start construction on the Michaud Flats project in Idaho. It attributed the action to the fact that at the time of the committee hearings "no repayment contract had been executed with the local irrigation district and a definite planning report was not available. . .. ."

• **Civil functions**—For the Corps of Engineers, the committee approved $322.2 million in construction funds—a reduction of $33.1 million from requests.

Biggest single item approved: $58 million for The Dalles Dam on the Columbia River between Oregon and Washington. Second largest, $23 million for Oahe Reservoir in South Dakota, followed by $18 million for Garrison Reservoir in North Dakota; $16 million for Chief Joseph Dam in Washington; $14 million for Los Angeles County drainage area; $12 million for Gavins Point Reservoir in Nebraska and South Dakota; $11 million for Table Rock Reservoir in Missouri and Arkansas; and $11 million for McNary lock and dam in Oregon and Washington.

• **Delaware planning**—The committee approved a budget request of $100,000 for planning part of the Delaware River project between Philadelphia and Trenton. This amount was justified for the sole purpose of preparing plans for the Delair Bridge relocation. Testimony indicated that it would be necessary, for the safety and convenience of navigation, to relocate this bridge whether or not the river channel is deepened.

The committee also recommended $3.6 million for advance engineering and design by the Corps of Engineers, a reduction of $1.3 million in budget estimates. This would cover some 60 projects in 33 states.

Administration Requests Cut

Public works appropriations recommended by the House Public Works Committee.

Agency	Administration Request	House Bill	Cut
Atomic Energy Comm. . .	$1,045,000,000	$618,000,000	$427,000,000
Tenn. Valley Auth.	27,550,000	26,214,000	1,136,000
Reclamation Bureau . . .	179,616,000	145,090,442	34,525,558
Civil functions	512,702,000	473,497,800	39,204,200
Southeastern Power Ad.	1,160,000	1,160,000	None
Southwestern Power Ad.	1,134,000	6,684,000	5,530,000*
Total	**$1,789,165,000**	**$1,291,746,242**	**$497,418,758**

* Increase

California to Vote

Legislature authorizes referendum on financing for schools, buildings

California legislators set the stage for an unprecedented building program during their 120-day session but demurred on giving final approval to the $1.5 billion Feather River project.

The legislature authorized a referendum on a $200 million bond issue for construction of new buildings at state institutions. Also slated for the November, 1956, election ballot is a proposed $100 million bond issue to aid local school districts with their building programs.

School construction got a further boost by passage of a bill that authorizes local school districts to enter into lease-purchase arrangements for new school buildings.

For current state building needs, the legislature budgeted more than $60 million. Also, a $26 million state office building program was assured when the lawmakers approved a measure to allow the state to borrow from reserves in various state funds for the structures. The money will be repaid to the funds as rent from the state agencies occupying the new buildings. Office buildings are authorized for Los Angeles, San Francisco, Fresno, Oakland, San Diego and San Jose.

Highway revenue taxes were held at their current level. Bills to authorize construction of toll roads fell by the wayside but two toll bridge crossings of San Francisco Bay were authorized (see story on page 23).

• **Water projects**—The legislature refused State Engineer A. D. Edmonston's recommendation for a $15 million appropriation to go ahead with the Feather River project. Proposals for a state bond issue likewise were defeated. However, lawmakers kept the project alive by voting $250,000 for an engineering survey by consultants. The report is requested for the next session of the legislature.

The project involves construction of Oroville Dam on the Feather River in northern California to impound water in a 3.5 million acre-ft reservoir for transfer by natural river courses, canals and tunnels to the central and southern part of the state. A feasibility report on the project was submitted by Edmonston in March, following a three-year study (ENR Mar. 10, p. 21).

Resolutions adopted by both houses urged the federal government to start immediate construction of the giant Trinity River project and its integration with the San Luis project under conditions mutually satisfactory to the state and federal agencies. Edmonston's Feather River project report opposes the Trinity-San Luis integration, declaring the San Luis Reservoir on the west side of the San Joaquin Valley will be a vital part in the proposal to carry water to southern California. The legislature declined to pass a measure to appropriate $3.5 million for the purchase of sites for Orovill Dam and San Luis Reservoirs, preferring to await clarification of plans.

The legislators failed to agree on a bill that would have combined into one state department the many agencies now involved in water policies.

A $100,000 fund was set up to investigate the plan recommended by Dutch engineer Cornelus Biemond for increasing the fresh water supply of the San Francinsco Bay area—an alternative to the long-studied proposals for salt water barriers (ENR April 7, p. 25).

Maine Increases Gas Tax; Governor Scores Diversion

Maine has joined the parade of states whose legislatures have voted a gas tax increase. A hike from six to seven cents will produce another $2.7 million annually for road construction.

Financing arrangements made at this year's session assure highway expenditures of $53 million for the next two years, compared to expenditures of $46 million in the last biennium.

A heavily-Republican legislature passed the gas tax increase over the veto of Democratic Gov. Edmund Muskie, who objected to the bill because it was tied in with diversion of $1.5 million for state aid and town roads. Muskie warned also that if the Gore bill passed Congress, he would probably have to call a special session to provide adequate matching funds.

Maine legislators approved for a referendum vote a proposed $1-million bond issue for a toll bridge from Jonesport to Ball's Island. About $6 million was voted for state institutional building.

Poor Operation Blamed

Odors that prompted a court order shutting down the sewage treatment plant of Kenton-Campbell Sanitation District in Kentucky are caused by poor operation, according to the designers of the $8 million facility (ENR June 9, p. 23).

A spokesman for consultants Vogt, Ivers & Seaman of Cincinnati says the 10-month-old plant is not being operated as originally designed, that operators of the plant believe they must hold the sewage to get best results from filters. He blames this holding for the stench.

Government Agencies See No Need to Curb Housing

Government housing agencies see no reason for any drastic action to curtail new housing starts. Both the Federal Housing Administration and the Veterans Administration feel that overbuilding crops up only in limited local areas where field offices have authority to tighten the reins on new mortgage commitments if necessary.

To unify local actions by the two agencies, field offices of both organizations recently were instructed by their Washington headquarters to get together before doing anything about a threatening situation in any area.

While the teamwork orders were in the mail, the Dallas field office of FHA lifted its ban on firm mortgage commitments for operative builders in that city. This highly publicized Dallas restriction—the only total curb of its kind in the United States—had been in effect since March.

Dallas builders now can again get commitments of FHA insurance—good for a builder's mortgage if the house doesn't sell as well as for an owner's mortgage if the home is sold.

Conditional commitments—eliminating the insurance of a builder's mortgage on an unsold house—had been issued as usual during the three-month shutdown on firm commitments.

Five Found Guilty of Fraud On New York City Sewer Job

Five defendants were found guilty in a New York City court of conspiracy and fraud in connection with construction of a sewer in the Laurelton district of Queens. A sixth defendant was acquitted.

A jury of 12 men returned its verdict last week after the longest criminal trial in U. S. history—just two days less than 14 months. The jury had deliberated 2½ days.

Those convicted were contractor Victor P. Clemente, and his son, Dominic; and three borough employes, Gerard J. Brinkman, a dismissed engineer in charge of sewer construction in South Queens, John A. Neary, a field inspector, and Walter C. Bullis, a highway inspector.

The case revolved about construction of a 2-mi, $186,000 sewer which was completed in April 1952. Soon afterwards complaints from residents in the area led to opening the 2-mi stretch of pipeline for investigation. Among the deficiencies reported were pipes missing and connections unsealed or stuffed with newspapers and rags (ENR Sept. 4, 1952, p. 74). The city paid $391,000 to have the sewer taken up and replaced.

Bridges Authorized

Legislature approves bill authorizing construction of two more bay bridges

The California legislature has authorized the construction of two new toll bridges in the San Francisco Bay area at an estimated total cost of $73 million.

A bill sent to the governor—and he is sure to sign it—calls for the issuance of revenue bonds to build a $47-million bridge parallel to the existing Carquinez bridge at Carquinez Straits between San Pablo and Suisun Bays, arms of San Francisco Bay.

The measure also calls for a $26-million span between Martinez and Benicia across the same straits 6 mi east of the Carquinez crossing. Financing will include a substantial freeway mileage at both crossings making the Carquinez project a total of 9 mi and the Martinez-Benicia job 7 mi long.

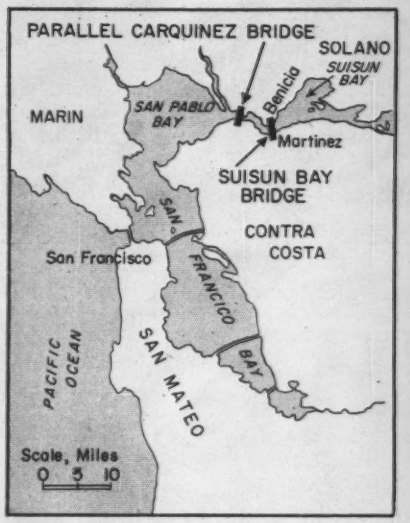
To finance the work, tolls will be charged on both new bridges and reimposed on the existing Carquinez bridge. The state is expected to retain Coverdale & Colpitts, consulting engineers of New York, to make a traffic analysis to help establish the toll rate—expected to be 25 cents for passenger cars.

• **An early start**—Work should get under way first on the Carquinez crossing for which plans are nearly complete. The three-lane existing bridge with its approaches is the biggest traffic bottleneck on U. S. 40 between San Francisco and Sacramento. For that reason the Department of Public Works has made detailed designs. But due to high cost it was found impossible to finance the work under the regular highway budget within the next few years.

The new Carquinez bridge will be similar to and 200 ft east of the existing structure, which was completed in 1928 and has two 1,100-ft cantilever spans ranked among the 10 longest of the type in the world. The new bridge will have a 52-ft roadway and will be 60 ft center-to-center of trusses. The existing bridge is 42 ft between trusses. Each structure will carry one way traffic when the project is completed.

Included in the 25,000 tons of steel required will be some 2,500 tons of high strength alloy (Carilloy T1) to be used in the most heavily stressed members.

This steel has a yield point of 90,000 psi and a working stress of 45,000 psi in tension and 35,500 psi for compression members. The bridge will have a clearance of 135 ft above mean high water. Side spans will be 500 ft.



• **Approaches**—A spectacular phase of the Carquinez project is the approach freeway to the south. An 8,000,000 cu yd cut will be needed to pierce the hills behind Crockett, Calif. Maximum depth of cut will be 300 ft with width at the crest approaching a quarter mile.

Inclusion of the Martinez-Benicia crossing with the Carquinez legislation came as a surprise to many. The span has been strongly advocated by local interests, to replace a state-owned, sporadically operated ferry, but a study made in 1951 by Tudor Engineering Co. of San Francisco found it financially not feasible. A recent addendum made for the counties involved said it could be paid off if tolls from the Carquinez site were pledged as well.

The type of bridge to be built at the Martinez-Benicia site has not yet been established. But it will be a high-level fixed-span structure with at least 138-ft clearance above mean sea level and with at least 500-ft-wide spans. Total length of bridge over water will be 1 mi.

Needles to Head ASCE

Enoch R. Needles has been named to be the next president of the American Society of Civil Engineers. Mr. Needles, principal partner in the New York and Kansas City consulting firm of Howard, Needles, Tammen & Bergendoff, was born in Missouri 67 years ago. On Monday of this week in St. Louis, Mo., the nominating committee of ASCE's Board of Direction named him their official candidate for the year beginning at the society's October convention in New York.

Slaughter Out

Confirmation of Michigan Turnpike Authority head denied by state Senate

The Michigan state Senate has refused to confirm the appointment of William E. Slaughter Jr., who has served as chairman of the state's turnpike authority for two years.

Rejection of Slaughter adds new fuel to a controversy that has been raging over the routing of the proposed 113-mi Rockwood-Saginaw toll road. Slaughter had encountered heavy criticism for wanting to route the turnpike in and out of Detroit suburbs. The lower house even adopted a measure that would give municipalities a veto over turnpike routes (ENR May 12, p. 24).

Democratic Gov. G. Mennen Williams told Senate Republicans who voted against Slaughter: "This is another good reason why it is so hard to get qualified citizens to serve the state." Slaughter is an active Republican and heads a Detroit oil company.

Gov. Williams had strongly opposed granting cities a veto over turnpike routes, saying that it would cramp the authority so that it might not be possible to build a turnpike at all.

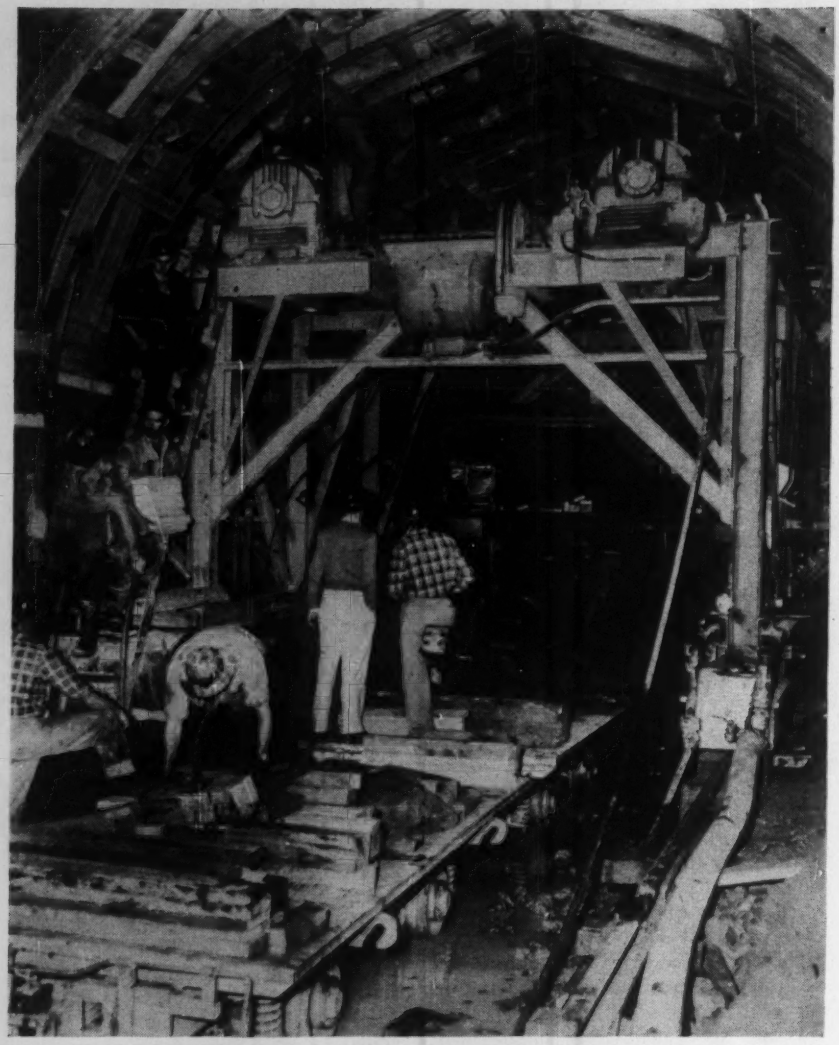
Termination of Slaughter's tenure plus the recent death of Rollin McConnell, leaves the turnpike authority with only two members, plus State Highway Commissioner Charles M. Ziegler, who has opposed most of Slaughter's plans. Ziegler once advocated dropping the turnpike project in favor of a Detroit-Bay City freeway, which would be an extension of Detroit's Lodge Expressway and would virtually parallel the proposed turnpike route north of Detroit.

Pittsburgh Gets State Aid To Plan Sewerage Project

Pennsylvania's State Health Department has sent the final payment of state aid—$151,165 out of a total $505,952—to the Allegheny County Sanitary Authority toward the cost of preparing plans for the Pittsburgh sewerage project.

Under Pennsylvania law municipalities receive up to 50% of the cost of sewerage project plans—including sewage treatment works—that are prepared in connection with the clean streams program. Pennsylvania is the only state with this kind of financial assistance, and the Pittsburgh plant is the largest single instance of the aid.

The Allegheny County Sanitary Authority project takes in 64 municipalities in the Pittsburgh district.



AIR-OPERATED JUMBO was used to set new six-day tunneling record of 402 ft.

Tunneling Record Set in Australia

A new world's tunnel driving record of 402 ft in a 6-day week was established the last week of May on the Ecumbene-Tumut Tunnel in Australia. The mark was set in the week ending midnight May 28 by crews of a joint venture of U.S. firms known as Kaiser-Walsh-Perini-Raymond. The tunnel has an excavated diameter of about 24 ft and is part of Australia's Snowy Mountain development.

The previous generally accepted record of 363 ft was set in 1953 by crews of Walsh Construction Co. on the Pit 4 project of Pacific Gas & Electric Co. in California. J. C. Hester, the superintendent on the Australian work, was a walking boss on the Pit 4 job.

The 14-mi Ecumbene-Tumut Tunnel will be driven from three headings. The first to get under way is the one on which the record was set with excavation at the time being 3,000 ft from the portal. In addition, contractors will drive two directions from Junction shaft which is 10 mi on tunnel line from Ecumbene portal. Junction shaft is presently 130 ft deep. A 300-ft depth is needed before tunnel driving can be started.

Material encountered in the tunnel is a combination of quartzite and shale. Excavated material runs 18 cu yd per foot of tunnel. Support is needed for much of the way with steel arches of 8x6-in., 35-lb. rolled steel joists being set as excavation proceeds. The arch ribs are spaced as closely as 2 ft on centers and frequently are backed by timber lagging.

The record was set with rounds 10 ft deep that broke on an average of just over 9 ft. Holes were drilled with equipment of U.S. manufacture working on an air-powered jumbo. Mucking and locomotive equipment are also of U.S. make. Most other equipment is Australian or British.

Kaiser-Walsh-Perini-Raymond is a joint venture of seven U.S. firms with Kaiser Engineers as sponsor.

Combine Is Apparent Low For Oahe Dam Contract

A combine which already has a $5.8 million contract at Oahe Dam, near Pierre, S. D., was apparent low at $4.6 million for construction of the dam's control shafts.

Bids for the job were opened by the Omaha District office of Army Engineers June 8. The low bid was submitted by Foley Brothers, St. Paul, Minn.; Winston Brothers Construction Co., Minneapolis, Minn.; Donovan Construction Co., St. Paul; C. F. Lytle Construction Co., Sioux City, Ia.; and Missouri Valley Construction Co., Leavenworth, Kan.

The control shafts will be vertical tubes 38 ft in rough bore. They will be bored at the dam's axis to reach down depths of 175 ft to 205 ft to intercept the tunnels. The job also calls for excavating four transition sections 140 ft long and two transition sections 190 ft long.

The same combine is now at work on the downstream half of the dam's six flood control tunnels. Two more contracts for the control work will be awarded later. One will carry the shafts up an additional 40 ft. The other will provide for the installation of equipment.

First Contracts Awarded For Florida Turnpike Work

This week—after a successful sale of $74-million worth of bonds—the Florida State Turnpike Authority warded the first contracts on construction of the 103-mi Hollywood-Ft. Pierce leg of the state-long toll road.

Cone Brothers Contracting Co., Tampa, was awarded a $542,000 contract for clearing 7.8-mi of right-of-way in Palm Beach and Martin Counties. H. E. Wolfe Construction Co., St. Augustine, received a $397,000 contract for clearing 6.5 mi in St. Lucie and Martin Counties. According to the turnpike authority, bids were 20% below estimates.

The toll road work is just part of a large volume of highway construction scheduled to get under way in Florida during the next few weeks.

One of the major road projects will be turning U.S. Highway 1 into a four-lane route along the northeast coast through St. Johns, Flagler, Volucia and Brevard Counties. Some $12.5-million will be spent on this work during 1955, and the State Road Department will take bids June 23 for 15.5-mi of the project between St. Augustine and the Duval County line. When work in the four counties is completed, U.S. 1 will be four-lane highway from Jacksonville to a point near Sebastian, nearly 200 mi.

THIS MAIN STREET will become just a memory when closure of Oahe Dam puts it under nine feet of water and forces . . .

Pollock, S. D. to Start All Over Again

Pollock, S. D., a drab little community of 600 population, is about to become one of the most attractive, well-planned small towns in the nation.

The old Pollock has never had a paved street; it has no community water or sewage system. The new Pollock will have all this—and more; it will be a completely engineered community.

The reason for the pending changes in Pollock is Oahe Dam on the Missouri River at Pierre, S. D., 160 mi downstream. When Oahe Dam is closed, the old Pollock will be under 9 ft of water.

Faced with this prospect, the town is moving ¾ mi to a new site on higher ground. The move involves relocation of 177 homes and 60 business houses, public buildings and churches. In addition, a new bridge must be built, and a portion of a railroad relocated. Total cost, Army Engineers say, will run about $2.5 million.

Pollock's response to the Oahe Dam challenge stands as a small-scale example of intelligent community action, according to Col. Thomas J. Hayes, Omaha District Engineer. What might have been a death blow has been turned to advantage in a manner that probably will be a model for other relocations.

• **It wasn't easy**—First, residents of the town held a referendum to decide whether they should move the town or just abandon it. The vote was unanimously to relocate.

Because of a gimmick in South Dakota law, the new town was set up by annexing it to the old. The annexation move will mean that there will be no lapse in the town's existence, and damages to be paid by the Army Engineers will go directly to Pollock. Otherwise, they would have gone to the state. The community will use these funds to make the move.

The community hired the Scott Engineering Co. of Watertown, S. D., to lay out a model community at the new site. The new Pollock will front on an arm of the Oahe Dam Reservoir. There will be a block-wide landscaped strip along the reservoir the length of the town. Every street will face on the parkway. And for the first time, Pollock's main street will be paved.

The town has been laid out to follow the land's slope so all sewer discharge lines will drain into a sump to be lifted into a lagoon for treatment by sun and wave action. Residents will be supplied with water from a 200-ft-deep well which on test produced 200 gpms with only 1 ft of drawdown. Water will be fed to the community by a single leg tank, the only one in the state.

The Pollock development community, a non-profit corporation, is directing the relocation. The new town is platted into an 11-block residential area and a one-block business area. The PDC is selling the lots at $4 a foot. Nearly 90% of the residential lots have been sold, and buyers have taken 36 of the 49 business lots.

• **Chance of a lifetime**—Residents got one lucky break that comes to few home owners: They not only had a chance to pick their new home sites; they were pretty well able to pick their neighbors, too.

Residents submitted first, second and third choices for their new home sites. Where conflicts resulted, a draw for the title was held. Then, as soon as locations were fixed, a round of trading began until residents had the neighbors they wanted.

One home already has been moved, and work on laying the sewer lines is in the final stage. The relocation must be completed by 1958 when closure will come at Oahe.

Ohio Cancels Plan to Try Experimental Road Paving

The Ohio Highway Department has cancelled plans for construction of what would have been the first stretch of continuously reinforced concrete pavement in the state.

A contract for the job had been awarded V. N. Holderman & Sons, Columbus, Ohio. Project is being readvertised for bids on June 21 as a conventional concrete pavement laid in slabs and reinforced with wire mesh.

Construction of the 4.6-mi stretch of continuously reinforced concrete pavement had been planned purely as an experiment. "We had hoped to determine whether this type of pavement, which costs an added 15% to 20%, is practical in this climate," a highway department spokesman said. The Holderman firm, which delayed work while the experimental project was re-studied, said it would bid on the conventional job. It is already working on a stretch of road paralleling the proposed project.

Air Force Decides to Build 2 More Stations in Alaska

Two more Air Force stations have been added to the list of seven that will get a summer construction start at remote Alaskan sites.

One of the new projects is Indian Mountain Air Force Station, to be located near the small settlement of Hughes in the central interior. The other is Sparrevohn Air Force Station, to be built back of the Cairn Mountains in the south central interior.

Construction cost for all nine stations is expected to add up to some $25 million. Contracts already awarded for the first six total nearly $20 million (ENR May 12, p. 56).

Bids for the two new projects will be opened June 23 at Seattle, along with those for the previously announced station on Sitkinak Island. Completion is set for October 1956.

INTERNATIONAL TRADE CENTER skyscraper may rise over Pennsylvania Station in New York City (Z-1), and a commercial building topped by a heliport may be erected over the railroad's open tracks (Z-2). It's a plan for . . .

Using City Air Space That's Valuable

The world's largest building may be erected in New York City over Pennsylvania Station. First plans call for a structure 500 ft high covering an area of 7½ acres. Cost is estimated at $100 million.

The building is planned as an international merchandise mart with extensive facilities for commercial exhibitions and office space for wholesalers and buyers. It will be called "The Palace of Progress."

The Pennsylvania Railroad has granted Webb & Knapp, Inc., New York realty firm, a one-year option to study the project. If it is found to be feasible, construction may begin June 1, 1956, with completion scheduled for the spring of 1958.

The project will be carried forward by a new company, Palace of Progress, Inc., a wholly-owned subsidiary of Webb & Knapp Inc., headed by showman Billy Rose. William Zeckendorf, president of Webb & Knapp, announced that Rose also had been named a vice president of that organization.

• **Questions to be answered**—There are several uncertainties that must be cleared up before construction can begin. A number of city regulations will have to be adjusted to permit clearance of the project. "We have every reason for optimism on this point," Zeckendorf said.

More important are the engineering studies that will be carried out to determine how such a huge building may be built without interrupting essential railroad traffic. Robert Heller & Associates, Cleveland industrial engineers and Paul Weidlinger, New York civil engineer, will act as consultants for these studies.

No detailed plans for the building have yet been prepared, but preliminary plans will be filed with New York City authorities this week. To avoid interrupting the flow of 689 trains a day through the station, the general plan is to build on massive columns based between the tracks below ground level.

The site is 450 ft wide. To minimize foundation work with its inevitable disruption of railroad traffic, the plan is to use the fewest possible number of columns. It is expected that the longest spans ever used in a building will be incorporated in the design of the Palace of Progress, and trusses as deep as 40 ft may be employed.

Present plans call for a building with 6,900,000 sq ft of floor space. Cubic footage would amount to 154,000,000 compared with 84,000,000 for the Pentagon in Arlington, Va., 54,000,000 for the Merchandise Mart in Chicago and 37,000,000 for the Empire State Building in New York.

The upper part of the building would be devoted to office space for resident buyers, commission agents, brokers, importers and exporters. At the next lower level, there would be 2,000,000 sq ft of space for the use of wholesalers—the merchandise mart. It would include facilities for the display of merchandise.

On the first six or seven floors, about 2,000 sq ft of floor space would be used for permanent public exhibitions of goods. A grand hall, perhaps 80 ft high, would be flanked by showrooms and small industrial theatres equipped with television, closed co-axial circuits and motion picture theatres.

Under the terms of the option agreement, the building corporation would pay the Pennsylvania Railroad $30 million for the rights above street level over the station. About $13 million of this total will be used by the railroad in the reconstruction of Pennsylvania Station.

• **The fourth dimension**—Zeckendorf said the Palace of Progress would have a fourth dimension, "never before engineered into any structure. We call it the videal dimension," he said.

"Every area of every floor will be designed to serve as a television setting for closed-circuit or commercial telecasts; lighting, acoustics and cable outlets will be engineered to permit tenants of the Palace of Progress to use television to achieve point-of-sales contact."

Zeckendorf said there was no relationship at present between the Palace of Progress project and another Webb & Knapp proposal for the same area. The federal government, he said, now is studying his plan to build a large commercial building topped by a helicopter landing field, over the open tracks of the Pennsylvania Railroad west of Pennsylvania Station.

This building would add 2,000,000 sq ft to expand operations of the adjoining general post office and might include an additional 2,000,000 sq ft for private commercial use.

Zeckendorf said he also was actively exploring possibilities for construction of still a third major building, an office building on the site of Grand Central Terminal in the heart of New York City.

Senate Votes Bill

Public housing gets boost in Senate's housing bill but faces hostile House

Public housing got a boost in the Senate's version of this year's housing bill, but the program the Senators voted faces sharp cuts by a hostile House of Representatives.

The Senate turned down President Eisenhower's plan for 70,000 public housing units in two years and adopted instead a Democratic proposal authorizing 135,000 low-rent dwellings annually for four years. The Senate action in effect restored the public housing program that Congress first authorized in 1949 when it approved 810,000 federally subsidized dwellings at the 135,000 annual rate for six years.

In recent years, the House has severely curtailed that program. Last year, the Senate and the Administration were able to win House approval of only 35,000 units for one year—and that with strings attached.

The Senate bill also contained a new plan to provide low-rent dwellings for elderly persons. This proposal would authorize 10,000 such units a year for five years. That would mean an overall public housing authorization of 145,000 dwellings per year. The special provision faces tough sledding in the House.

Other significant sections of the Senate measure have a good chance of acceptance. The Senate bill aims to revive Wherry housing for military families in modified form, expand the college loan program to include other facilities besides housing, increase federal grants for urban renewal projects, raise mortgage insurance limits for private builders in renewal areas and create two revolving funds to assist local public works—one fund to make planning advances and the other to lend money for construction.

The bill also included a plan to expand air pollution research and aid private businesses with loans for construction and installation of pollution control equipment. In addition, the Senate measure provides increased authorizations for mortgage insurance of nonfarm and farm housing and proposes some financing aids for cooperative housing.

• **Military housing**—Wherry housing for military personnel, dormant for the last year, would be revived on an entirely new basis under the terms of the bill. The new plan would limit the private builder's role to that of a construction contractor, with the Defense Department assuming responsibility for operating the completed project and paying off the FHA-insured mortgage.

Instead of a 90% loan, as under the Wherry Act, the mortgage would cover 100% of the replacement cost of the housing or of the lowest acceptable bid, whichever is less. Contracts for construction on land owned or leased by the Defense Department would be awarded to the lowest responsible bidder on the basis of FHA-approved plans and specifications.

The new plan would free builders from having to certify their costs, as they now must do on Wherry housing. But the contracts would be subject to renegotiation if Congress extends the Renegotiation Act.

Loans to colleges, under the bill, could be made for income-producing facilities other than housing—such as cafeterias, dining halls, student centers and infirmaries, but not gymnasiums or stadiums. The ceiling for such loans would be increased to $500 million from the present figure of $300 million.

For local public works, the Senate would step up the advance planning fund from the presently authorized $10 million to a total of $48 million. Another revolving fund of $100 million would be set up immediately to make construction loans.

Federal grants to cities and towns for slum clearance and urban renewal would be given an increased $525-million authorization of which more than $300 million would be made available July 1 and the rest a year later. Capital grant commitments will have used up the original $500-million authorization within a month or two.

Clean Streams Bill

Senate committee votes compromise bill extending water pollution control

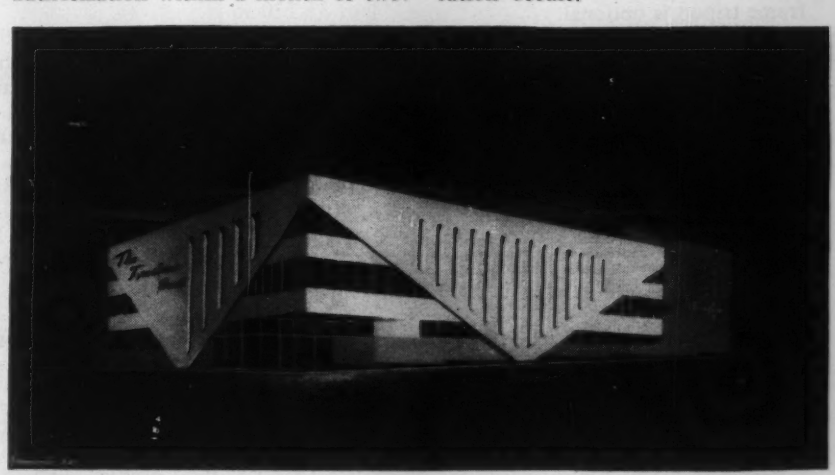
A Senate committee this week approved a compromise bill to extend the water pollution control law. As rewritten by the committee, the bill leaves control with the states, but makes it possible for either the state where pollution originates or the state downstream to request federal action.

As the law now stands, the federal government may—as the final step in a long series—bring suit to stop a case of pollution only with the permission of the state involved.

The Administration had asked greatly broadened enforcement powers. No case of interstate pollution has ever reached court, but officials believed obtaining permission from both states involved would be an impossibility. They asked legislative authority to bring suit without getting permission from the states. This brought objections from state officials.

Under the compromise bill, the U. S. Public Health Service will first warn a stream polluter several times. Then, if the polluter takes no "action reasonably calculated to secure abatement", suit may be brought in federal court.

The federal government alone, however, could not bring the suit. It could be started only at the request of a state into which the polluted water flows—or, as in the present law, with the permission of the state where the pollution occurs.



Bank Design Features Concrete Trusses

Two concrete trusses, resting on their apex to carry the roof and upper floors, form a unique architectural feature of a $1-million, three-story bank building in Akron, Ohio. The trusses, by concentrating loads, will help solve foundation problems posed by unstable soil conditions. Trusses will be scored vertically with window openings; the remainder of these two sides of the building will be aluminum-faced and have continuous windows. Design is by Bank & Equipment Corp. of America, bank design specialists, with headquarters in St. Louis.

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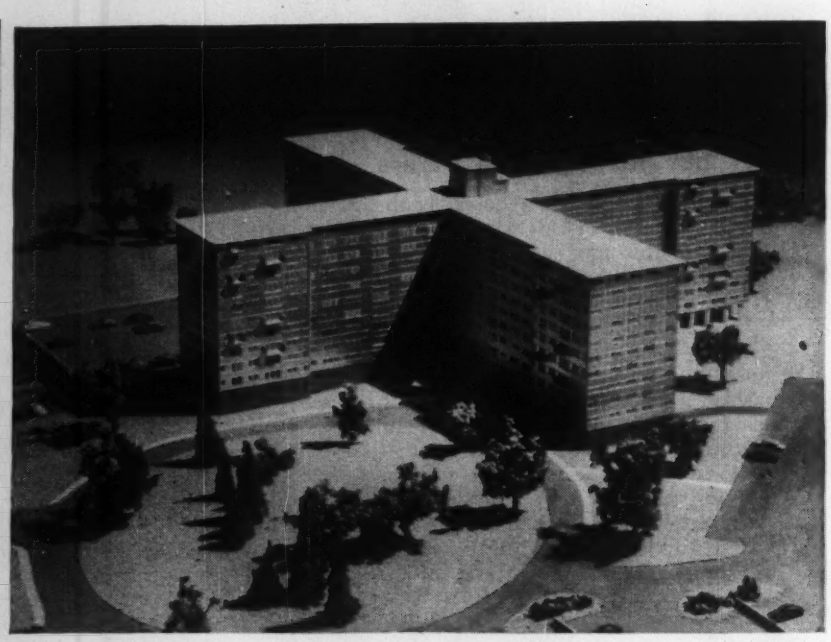


CHETWYND APARTMENTS near Philadelphia will have aluminum skin walls.

FHA Approves Apartment With Aluminum Skin Walls

The first aluminum skin project approved by the Federal Housing Administration—Chetwynd Apartments—is under construction on a 27-acre site in Radnor Township, Pa.

The building, 10 floors and a lobby, will provide 320 apartments and a garage for 160 cars. Its cross-type design was planned by architect Charles F. Wise to furnish the maximum number of dwelling units on each floor with a minimum of waste space. Each floor will have an area of 31,730 sq ft.

Most of the exterior walls will be cantilevered 8 ft beyond the columns. The columns actually are bearing walls 8 in. wide and 4 ft to 5 ft long. The building is designed so that these bearing walls form partitions.

Contractor for the project is Rosemont Construction Co. Structural engineer is Severud-Elstad-Krueger. Mechanical engineer is Ginzburg & Smith.

Paving Firm Gets Damages For "Unreasonable Delay"

The Pennsylvania State Arbitration Board has awarded a Pittsburgh paving firm $242,788 in damages for "unreasonable delay" caused by the State Highways Department on an Allegheny County paving contract.

The damages—largest ever assessed against the highways department—stemmed from a claim that the department delayed the paving project with utilities relocation.

Allegheny Asphalt & Paving Co. began work on a $600,000 paving job near Pittsburgh in July 1950. The contract allowed 110 working days for completion. But the project took 80 days longer than scheduled, and the firm blamed the highways department for failing to have power line, sewers and telephone facilities relocated before paving started.

The paving firm originally filed a $569,000 claim for loss of equipment and labor time. But the board whittled the claim down on the grounds that only half of the 80 days of delay constituted unreasonable delay.

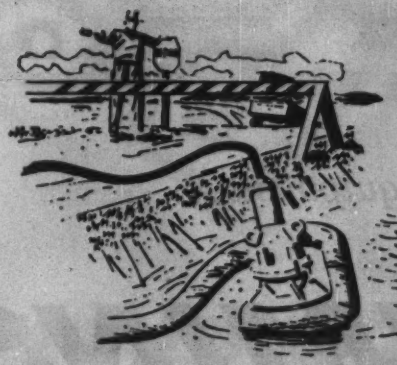
The board ruled that the granting of utilities relocation permits by the highways department without the contractor's consent were material changes and interferences that substantially delayed and increased the cost of the paving project.

Canada Announces Plans For First Atomic Plant

Canada's first nuclear power plant to develop electricity will be built at Des Joachims on the Ottawa River, some 150 mi north of Ottawa and near the government's Chalk River atomic energy development.

The plant will be built by the Ontario Hydro-Electric Power Commission in conjunction with Atomic Energy of Canada, Ltd., and Canadian General Electric Co., Ltd. It will cost between $13 million and $15 million and produce up to 20,000 kw upon completion in 1958.

Power will be generated in a heavy-water moderator, using Canadian uranium with other materials to produce steam for turning turbines.



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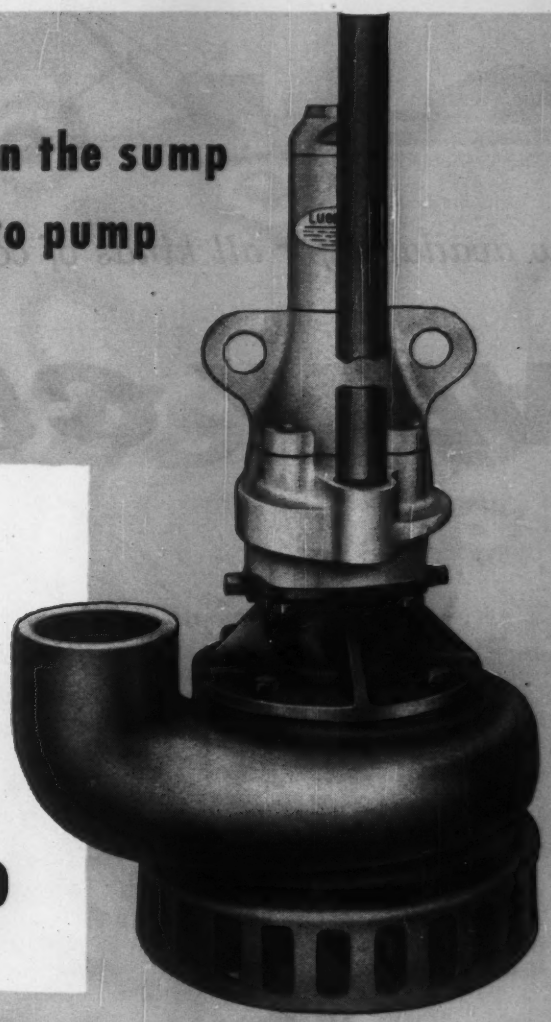

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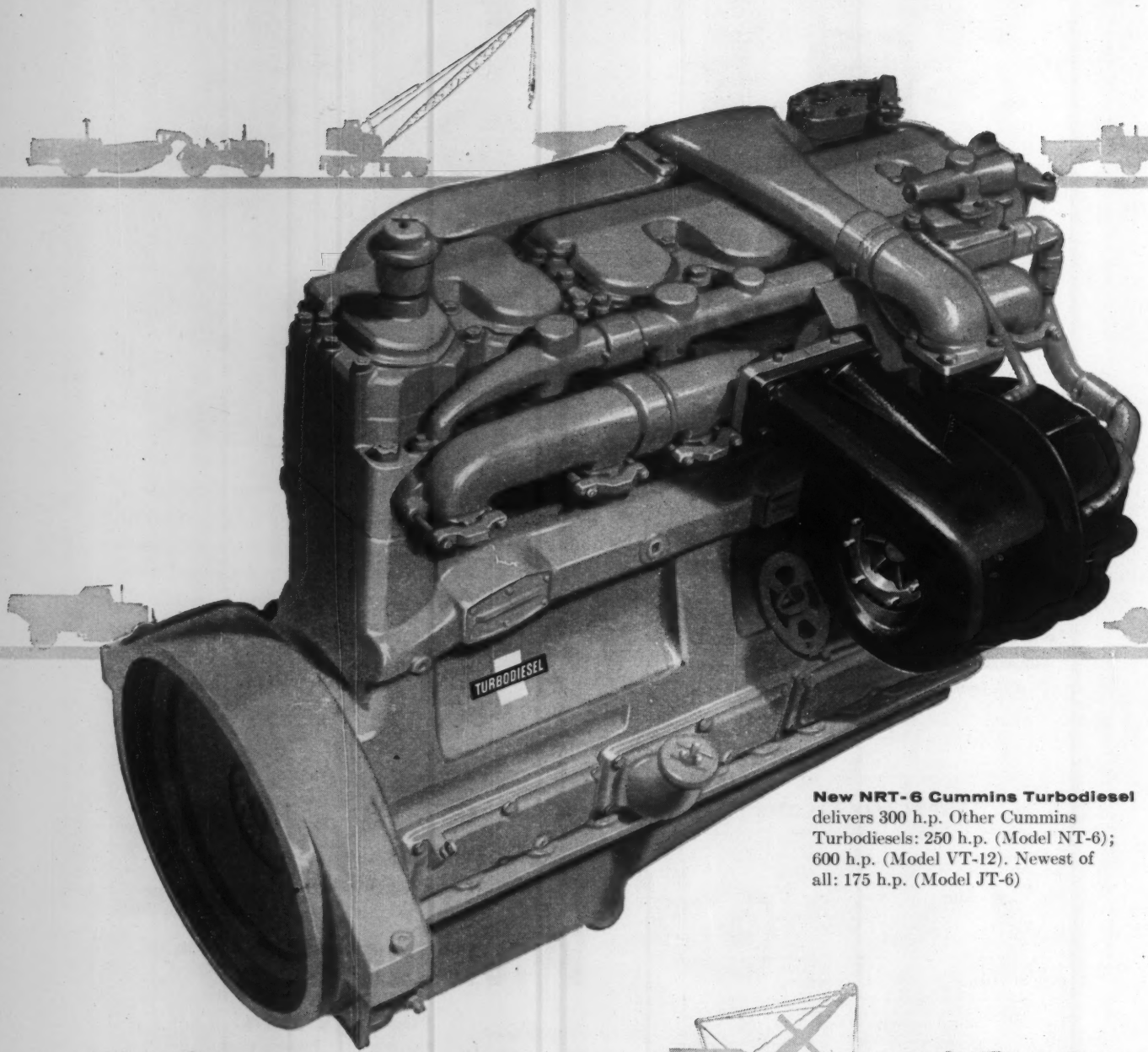
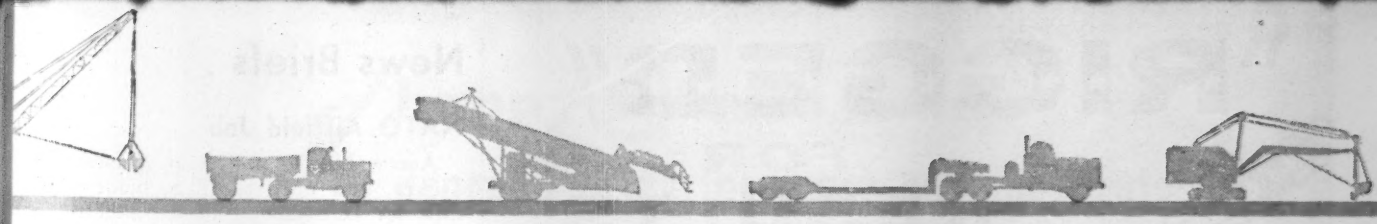
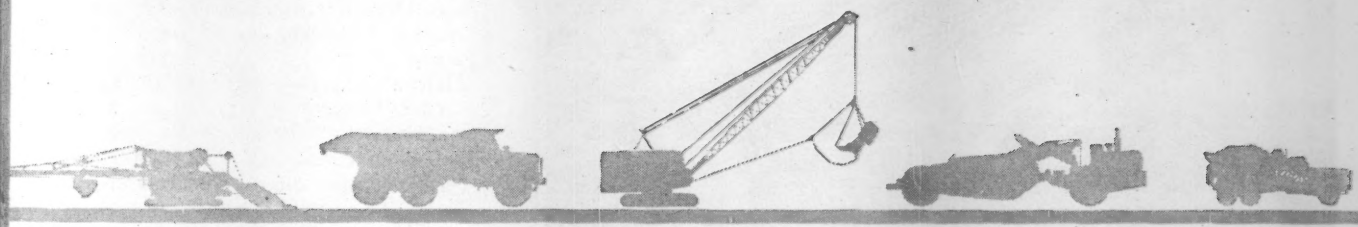


New NRT-6 Cummins Turbodiesel delivers 300 h.p. Other Cummins Turbodiesels: 250 h.p. (Model NT-6); 600 h.p. (Model VT-12). Newest of all: 175 h.p. (Model JT-6)



TURBODIESELS



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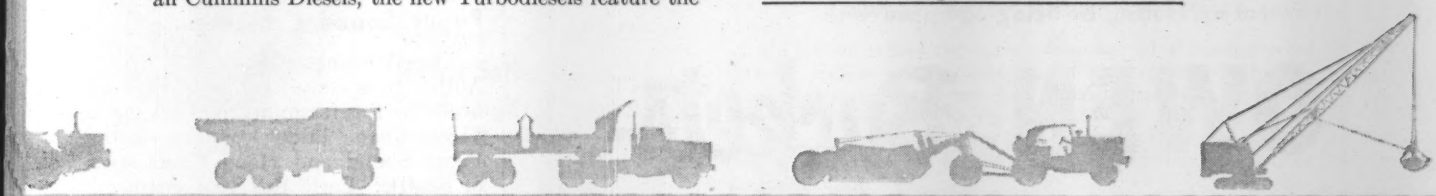

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This impressive fleet of Byers Truck Cranes is lined up to start a Walsh-Perini-Groves-Slattery Co. construction job for the United States Steel Fairless Plant at Morrisville, Penna.

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News Briefs . . .

NATO Airfield Job

A new NATO project at Antalya, Turkey, now open to U. S. bidders, calls for construction of a 9,000-ft-long airstrip and related facilities at an estimated cost of $9.5 million. Bids must be submitted before June 20, and work is expected to be completed by the end of 1957. Bid forms may be obtained from the Commercial Intelligence Division, Bureau of Foreign Commerce, U. S. Department of Commerce, Washington, 25, D. C.

Bridging the Mississippi

The Arkansas and Mississippi Highway Departments have awarded engineering contracts for a new bridge across the Mississippi River near Helena, Ark. Howard, Needles, Tammen & Bergendoff, Kansas City, Mo., will receive a $230,000 fee for preliminary engineering and a $270,000 fee for supervision during construction.

Turnpike Activity

Two bills for additional extensions to the Pennsylvania Turnpike have been passed by the state legislature and sent to Gov. George M. Leader for approval. One of the measures would provide for an east-west "shortway" between Sharon and Stroudsburg. The other authorizes a southern extension from the present turnpike near Pittsburgh to connect with the West Virginia Turnpike.

Puget Sound Crossing

The Washington State Toll Bridge Authority is consulting with financial firms on the feasibility of building a $138-million bridge system across Puget Sound and Hood Canal west of Seattle. Early this year engineers judged the $22-million Hood Canal project impractical as a separate development (ENR Feb. 10, p. 23). But it reportedly could be financed in connection with the Puget Sound crossing, which it would feed.

Natural Gas Pipeline

Work is expected to begin next spring on a $30.6-million, 30-in. pipeline designed to bring additional out-of-state natural gas into the Los Angeles area. The project would run from Topock at the California-Arizona border to Alhambra, Calif. Southern California Gas Co. and Southern Counties Gas Co. have applied to the State Public Utilities Commission for permission to build.

✓ happy balance between dependable performance and moderate cost

Tru-Rol *precision, steel-cage, heavy-duty bearing with contoured guide lips assuring true right-line rolling, maintained roller alignment and thin oil film.*

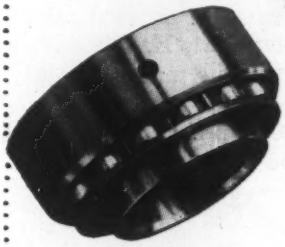
● Rollway's *TRU-ROL* Steel-Cage Bearings afford wide latitude in balancing *dependable* performance, *long* life, and *high load* capacity against *moderate* cost. They rate high in any comparison on a cost-performance basis.

A choice of stamped steel retainers with contoured guide lips, or steel segmented retainers assure true rolling and an evenly distributed *thin* oil film — *big factors in reducing power losses and heating.*

"Crowned" Rollers Relieve End Stress

TRU-ROL offers the extra advantage of a finish-ground "crown" radius on the roller ends. That relieves high end-stress and insures uniform load distribution over the entire length of the roller. The result: *TRU-ROL* Steel Cage Bearings carry heavier loads over longer periods without excessive end-fatigue. They are less affected by slight misalignment or shaft deflection.

Investigate *TRU-ROL* Steel Cage Roller Bearings before selecting any bearing in the medium price range.



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Rollway Metric Series Steel Cage Roller Bearings

● Rollway Metric Series Steel-Cage Bearings offer the greater load capacity of solid cylindrical rollers, plus the true right-line rolling of trunnion rollers turning in a rigid steel cage. There's no roller skew, no pinch out, no cam action. Design permits maximum bearing capacity . . . within small space . . . at moderate cost.

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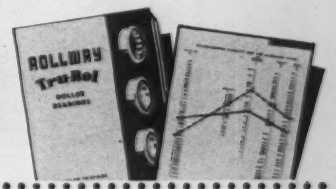

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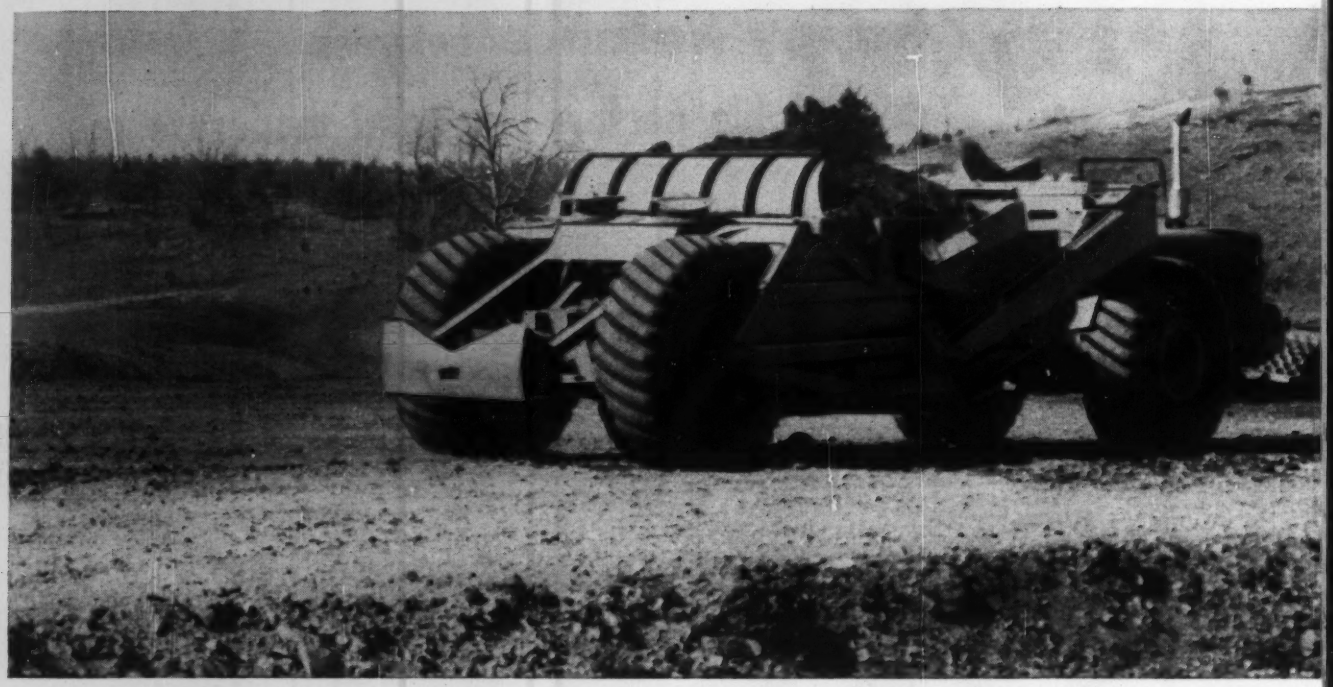


Allis-Chalmers TS-360 Motor Scrapers are key machines

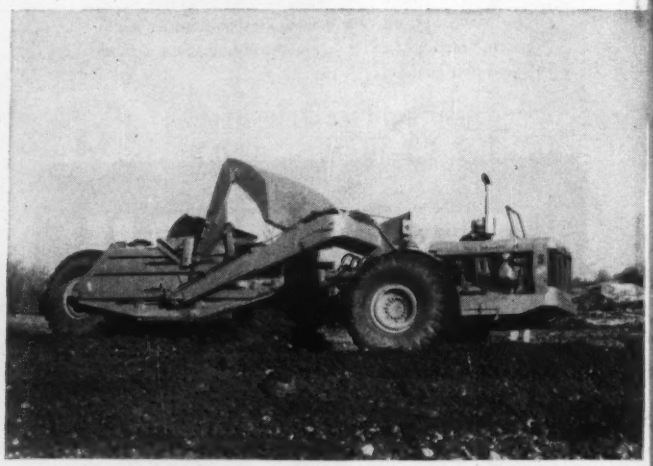
RUSHING MISSOURI DAM

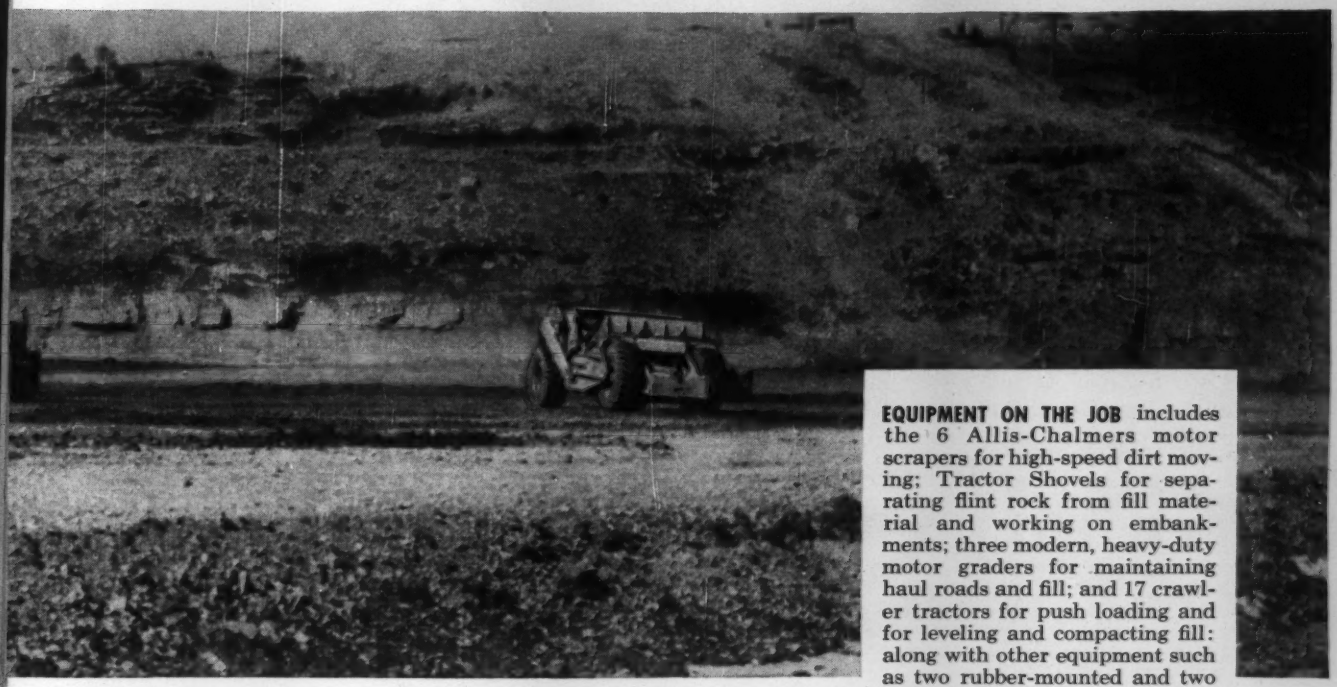
QUICK JOB FACTS

Scheduled for completion in November, Fellows Lake Dam will impound up to 9 billion gallons of water to feed McDaniels Lake, the main reservoir to supply water for the city of Springfield, Missouri. M. E. Gillioz, contractor, Monett, Missouri, will move a total of 1,750,000 cu yd for the rolled earth-fill dam. It will be 2,870 ft long, 100 ft high, 600 ft wide at the base and 20 ft at the top.

1. SCRAPERS LOAD IN 30 SECONDS with the help of torque converter tractors. Even in material containing tough flint rock, the 280-hp TS-360's get big, 20-yd loads and are on the way in a hurry from borrow pit to fill.

2. FAST, EVEN DUMPS are attained through positive forced ejection and exclusive high apron lift (102 in.). High rim pulls enable the motor scrapers to dump on-the-go and cut valuable seconds from cycle time.





EQUIPMENT ON THE JOB includes the 6 Allis-Chalmers motor scrapers for high-speed dirt moving; Tractor Shovels for separating flint rock from fill material and working on embankments; three modern, heavy-duty motor graders for maintaining haul roads and fill; and 17 crawler tractors for push loading and for leveling and compacting fill: along with other equipment such as two rubber-mounted and two crawler-mounted cranes. The tractors, Tractor Shovels and three motor graders are also Allis-Chalmers units—Gillioz has been a user of Allis-Chalmers equipment for more than 20 years.

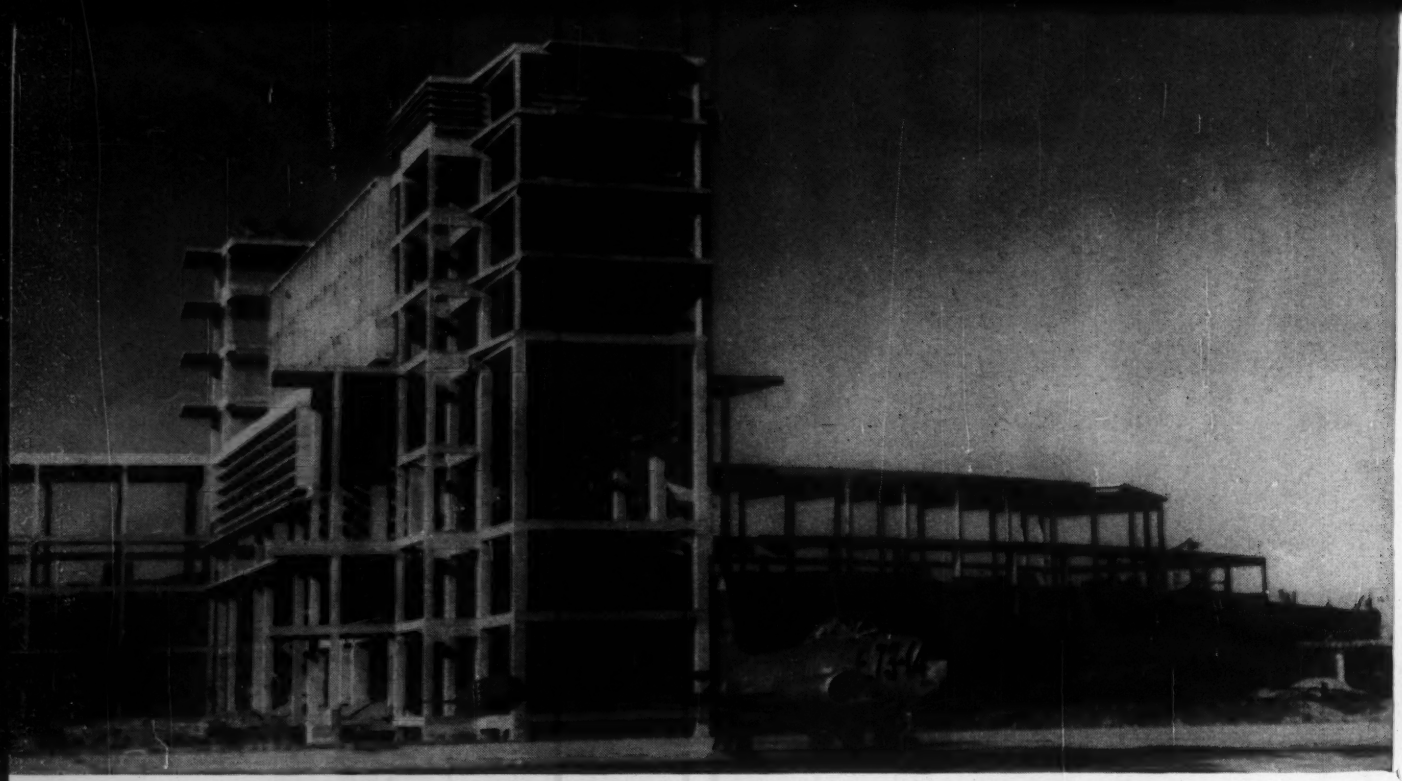
TO COMPLETION

3. 6,000-FT CYCLES IN 4.4 TO 5.1 MIN. Averaging 118 trips per 10-hr day (11¾ per hour), each motor scraper moves about 188 *pay* yd per hour — 1,880 per day. Loaded scrapers are accelerating up to speeds of 20 mph within 300 to 400 ft. Good haul roads maintained with Allis-Chalmers motor graders contribute to fast haul cycles. Graders are also used on the fill.

4. TRACTOR SHOVELS HANDLE VARIETY OF WORK. Gillioz' Tractor Shovels are equipped with rock buckets for separating oversize rock from fill, cutting embankments and other work. Fenix and Scisson, Tulsa, Okla., also used Allis-Chalmers Tractor Shovels for excavating and loading on the 808-ft, 8-ft-high diversion tunnel to the reservoir.

ALLIS-CHALMERS

TRACTOR DIVISION • MILWAUKEE 1, U. S. A.



CONSTRUCTION IS RESUMED after a year's interruption on Madrid's air terminal building. Early completion of this needed modern facility is promised now as . . .

Spain Quickens Its Building Tempo

U. S. aid and mounting tourist trade give Spanish construction industry work to do and the means to do it

Waldo G. Bowman
Editor
Engineering News-Record

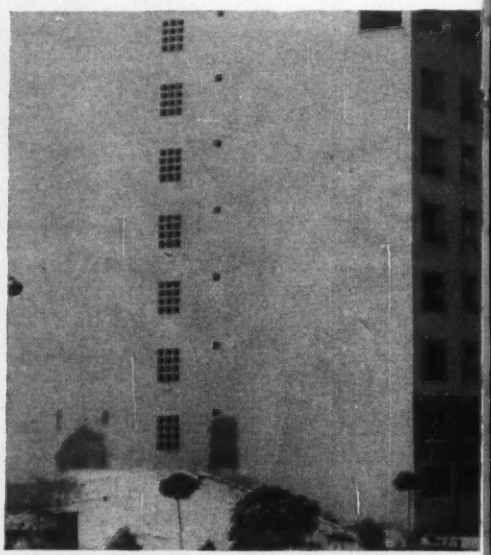
MADRID—All over Spain there is evidence of a quickened pace in construction. It is not so much that there are more projects being started than there were, say, two years ago (although they are unquestionably on the increase), but rather that jobs under way are being carried forward faster.

In Spain, as in several other European countries, the general practice both for government and private investors is to start construction projects before all funds for completion are available; then the jobs are let stand idle when the funds are exhausted until more money can be accumulated. Many of these stalled structures are now active.

Greater confidence in the future, which this activity suggests, stems in part from the U. S. airbase program and the economic and military aid that accompanies it, but a more potent influence, at least so far, is the constantly increasing tourist trade. This has given private industry new funds, and it has given the government a broader tax base.

On the government side the result can be seen in widespread activity in road building, in new workers' villages and in hospitals and clinics. Starts also are being made on numerous private commercial buildings. And, in Madrid, construction has begun on a 30-story office building that will be among the world's tallest reinforced concrete buildings. Another notable government project is a memorial to Spain's war dead—a great domed basilica that has been hollowed out of a mountain near Madrid in a truely remarkable tunneling operation. There are also said to be 160 inns and hotels under way in Spain, as well as a number of new steam power plants. Progress is being made in modernizing the Spanish railroad net, and considerable amounts of U. S. aid will soon be going into this work, particularly on those main lines that can serve the U. S. base set-up, such as the Madrid-Cadiz, Madrid-Barcelona, and Madrid-Valencia links. A few of these construction activities are worth specific mention.

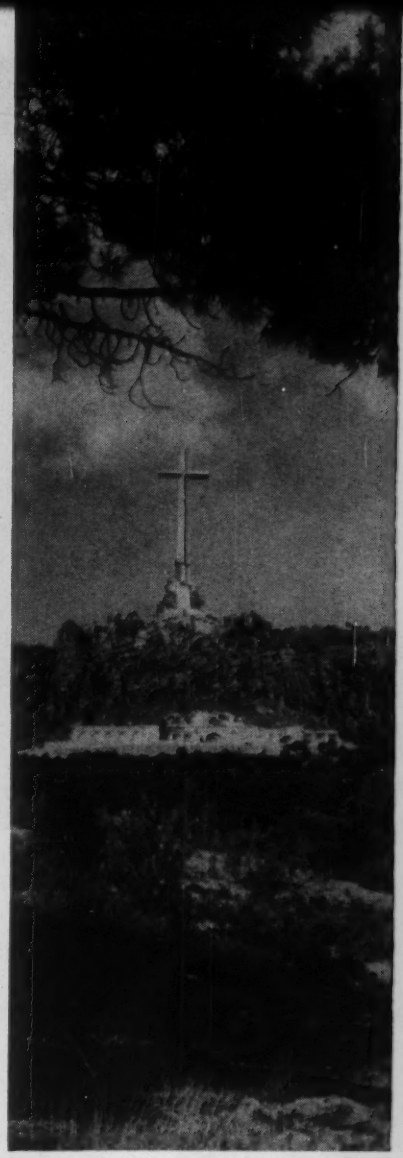
• **New U. S. Embassy**—Not strictly a Spanish operation, but adding to the work of the Spanish construction industry, is the U. S. Embassy building, which was officially opened on April 25. Eight stories high and of reinforced concrete, it has been 3½ years in building. Elevators, air-conditioners and some of the hardware are of U. S. manufacture, but the remainder of the materials are from various European countries and Spain (purchased thus in order to use some of the nonconvertible foreign credits of the U. S.).



MANUFACTURING PLANT in Madrid suburb is to house truck production. Spanish industry has been spurred to building activity by new confidence in economic future.

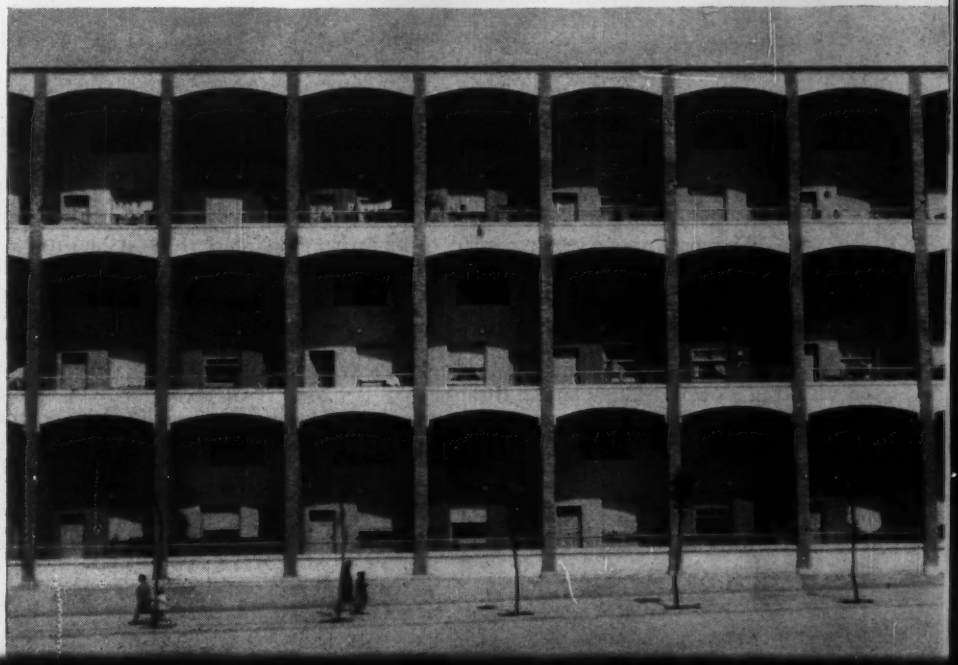
The building's cost was approximately $3 million. It contains 41,275 sq ft of office space as well as a 210-seat auditorium and a 30-car garage. There is a 340-kva diesel-electric generating plant for standby service to operate the elevators and air-conditioning system in case of power failures —frequent in recent years due to droughts that have affected Spain's hydroelectric supply.

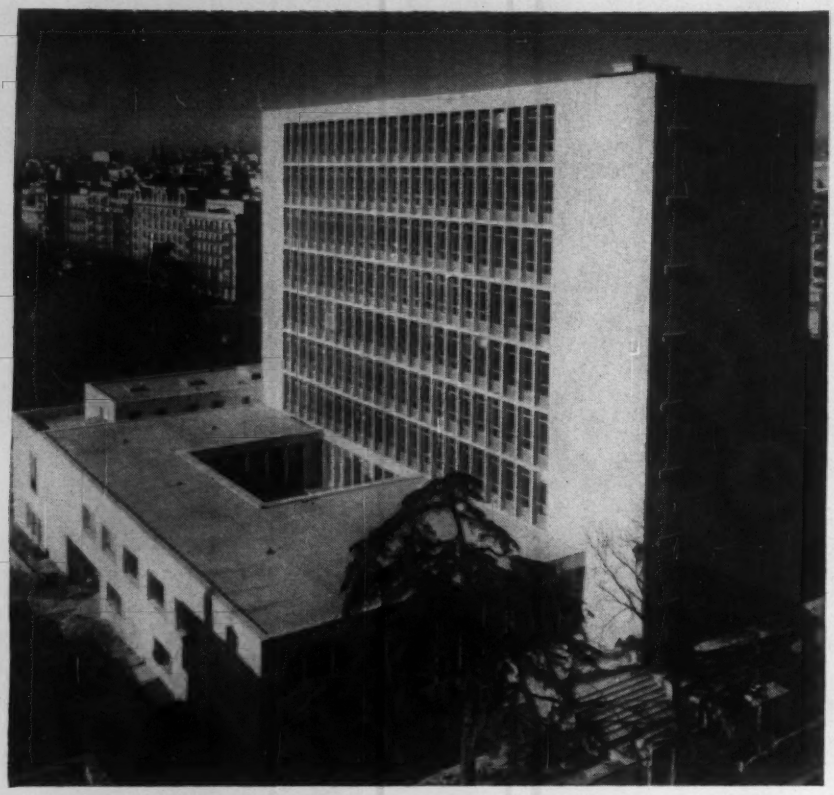
The new embassy is enclosed in Spanish Morata stone (similar to Italian Travertine) and its windows are deep set, with vertical sun louvres and aluminum sash. The architectural design is similar to the new U. S. embassies in Brazil and Cuba and is the product of the Foreign Buildings Operations Division of the Department of State. Ernest J. Wartow of this division was the resident engineer in charge of construction. The contractor was Omes-Harris, a combina-



MONUMENT to Spain's Civil War dead is major construction job. Beneath a 500-ft concrete cross there is hollowed out in granite a great underground shrine. At base of rock outcrop is entrance building.

MASS HOUSING of recent construction shows striking variety. Tallest among new Madrid apartment buildings is the 22-story structure standing out (left) among those of usual height. Both types at left contrast with cellular, 3-story at right, below.





U. S. EMBASSY OPENED APRIL 25 in Madrid. It is eight stories, with lower wings enclosing an entrance courtyard. It took 3½ years and $3 million to build.

. . . Changing Madrid's Skyline

tion of the Spanish firm, Obras Metalicas Electro-Soldadas, and of John W. Harris Associates of New York.

• **Concrete skyscrapers**—For the most part the Madrid skyline reflects a rather uniform building height of five or six stories. There are a number of taller structures—several apartment buildings, the International Telephone Building and, most important, the Edificio Espana, a 26-story reinforced concrete office building and hotel, 385 ft high, completed about 5 years ago —and incidently including among its present tenants the U. S. airbase engineers and contractors. So successful has the Edificio Espana been that the owners have embarked on an even taller structure across the street.

This new concrete skyscraper, to be called La Torre de Madrid, will be 30 stories high and thus exceed 400 ft. The basement excavation for this new building is complete and work is under way on the foundations. Because the owner—Compania Inmobiliaria Metropolitana—is strong financially and because good office space is at a premium, it is not likely that there will be any interruption to the operations until the building is completed.

Another relatively tall reinforced building, 17 stories, was completed this past year for the use of some of the various syndicates into which Spanish industry is divided. Known simply as the Syndicates Building it is notable for its extremely deep set windows (3 ft) and for its facade of red brick. White stone faces the ground floor and is used for a coping at the top, but elsewhere the unrelieved brick prevails.

• **Airport terminal**—Madrid's Barajas airport is already a vast network of concrete runways and taxiways, but like some U. S. cities it lacks a modern terminal building. This does not mean that such terminal facilities are not planned, or even that they are not under way. Actually the Barajas terminal affords a good example of a project that was started in its entirety, and then allowed to stand uncompleted because of a lack of government funds, or at least of legislative appropriations. It is also an example of a project that is now to be resumed with new vigor.

The reinforced concrete frame of the terminal building is practically complete. It shows a central tower about 100 ft high with curving four-story wings at either side. There are four basements extending down to a depth of 56 ft, one to be occupied by a rail terminal, since the plans contemplate a rapid transit connection with Madrid, and another to accommodate a parking garage. The central building will contain the entrance lobby, the ticketing facilities and, on the airport side, a restaurant. In its upper stories it will house offices and the traffic control tower. Domestic plane operations will be concentrated along one wing and international operations along the other. Since the terminal is on sloping ground, it is arranged for passengers to arrive from Madrid on the upper side, and walk down ramps to the planes, which are at the lower level. So while there are four basements on the entrance side there are only two on the airport side.

• **Underground shrine**—Perhaps the most remarkable construction operation in Spain is a vast monument and ossuary for the remains of the Civil War dead. It has been hollowed out of a granite outcrop about 500 ft high and 300 ft in diameter situated in the Guadarrama Mountains 30 miles northwest of Madrid and 5 miles from El Escorial monastery where Spain's kings are buried. It is estimated that some 350,000 cu ft of bones will eventually be moved to this shrine, which it is also said will be General Franco's burial place.

In addition to the underground basilica, the project includes a 500 ft high cross on top of the outcrop. Its size may be appreciated from the fact that the white structure shown at the base of the outcrop in the photo (p. 37) is a sizable entrance building. The cross contains an elevator to take visitors up to the arms. Some 1,300 tons of reinforcing steel and 15,000 tons of cement were required for its construction. It is covered with blue granite.

But the real construction operation occurred in the excavation for the basilica. This totaled 250,000 cu yd, and was begun by first tunneling straight through the outcrop at the base level, and then enlarging the central portion into a nave and transepts surmounted by a dome at the crossing. Work was begun 12 years ago, and all excavation is now complete. Decoration will go on for years, but frescoes and mosaic work are already well advanced, as is the finishing of the entrance building situated outside at the base of the outcrop. It is planned to have the entire project completed for an official dedication July 18, 1956, the 20th anniversary of the military operations that brought General Franco to power. The original architect, now dead, was Pedro Muguruza. Diego Mendez is carrying on the work.

(*Continued on page 40*)

Sound, Light, and Air Conditioning Integrated into One Attractive Ceiling in New D.A.V. Building

Idento-Tags, known to millions of motorists, are manufactured at D.A.V.'s Cincinnati headquarters, and provide its sole source of income. The tags help the motorist to remember license number and assist in recovery of lost keys.

Disabled American Veterans Building, Cincinnati, Ohio
Architects: Luigi Marioni, Cincinnati • General Contractor: Kopf and Kopf
Acousti-Celotex Contractor: E. C. Decker & Company, Inc., Cincinnati

Acousti-Line† Suspension System Combines Beauty, Utility, Sound Conditioning Function

45,000 square feet of ceiling area in the manufacturing section of this modern Cincinnati building were treated with Acousti-Celotex Random Pattern* Perforated Mineral Fiber Tile on the Celotex Acousti-Line metal suspension system. The entire installation was completed in 17 working days. The result: A completely integrated ceiling combining advantageous placement of lighting fixtures and air conditioning diffusers with unusual sound-deadening efficiency.

With the exclusive Acousti-Line Suspension, easy tile removal at any ceiling point provides immediate access to the plenum chamber for servicing utilities.

Increases Efficiency—Many other areas in the D.A.V. building . . . offices, bowling alleys, cafeterias . . . are treated with Acousti-Celotex products. Such tile ceilings check noise of office machines, conversation, traffic, recreational activity . . . provide an atmosphere of *quiet comfort* that improves working efficiency and reduces fatigue.

Easily Maintained—Quickly installed in existing buildings or during new construction, Acousti-Celotex Tile requires no special maintenance thereafter. It has high sound absorption value, and presents a beautiful surface that can be washed *repeatedly* and painted *repeatedly* without loss of sound absorbing properties.

†Registered U.S. Pat. Off. *U.S. Design Patent D 168,763

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SYNDICATES BUILDING, at 17 stories, is far from the 30-story height of a new office building (La torre de Madrid) just started. But it is distinctive for its deep-set windows in a facade of red brick. It houses syndicates into which Spanish industry divides.

. . . And Pushing Spanish Works

• **Power expansion**—With official figures showing Spain's power installations to total 3.8 million kilowatts, plans or projects are on the books to add another 2.5 million kw during the next three years. Quite a lot of this will be dependent on American aid, and thus is still problematical. Nevertheless, $7.5 million has already been allotted for two 66,000-kw thermal plants—additions to existing installations at Bilbao and Zaragoza respectively. The General Electric Co. has one of the contracts and Westinghouse the other. Gilbert Associates, New York, are the consulting engineers.

Most of the power additions being made in Spain at present are at steam plants, in an attempt to make the country less dependent on hydro-electric power, which has been so often adversely affected by droughts. Thus two 30,000-kw units are being built at Cadiz, one at Malaga and one at Almeria, all by the British Metropolitan-Vickers Co. These plants will burn oil, while the two U. S.-aided plants will burn coal and lignite respectively. Fuel oil will also be used in the largest of the present installations, three 70,000-kw units at Cartagena. This plant, with a production of 1.4 billion kwh a year, is being built by the International General Electric Co.

In addition to these thermal projects, the Ministry of Public Works has plans for increasing the hydro capacity on the Tagus River up 450,000 kw and on the Ebro by 500,000 kw. In the Bilbao area in the north a private company has also projected 600,000 kw on the Duero River.

Considerable work is also under way in Spain to improve the transmission of power from one area to another. Here, again, the U. S. is aiding by assigning $5 million of FOA funds to the purchase of transformers, condensers and switch gear.

• **Highways**—Traveling on almost any one of the national highway routes of Spain, one will encounter road gangs at work every few miles. In itself this is not abnormal in a public works economy such as Spain's where the bulk of the taxes collected from industry and agriculture are used to keep a large segment of the population employed on such things as public buildings, irrigation and power projects and highways. But whereas most former road work has been patching, ditching and the like, these current operations involve straightening, overpass and underpass construction, widening, and even bypass construction to avoid narrow village streets. And while most of it is being done without benefit of construction machinery—in line with the theory of keeping more men at work longer—a change is also on the way in this regard. Some $3 million of the U. S. aid fund has been used to purchase modern roadbuilding equipment. The machinery purchased with U. S. dollars will be the property of the Spanish government, leased to private contractors.

There is hope that the demonstrated advantages from the use of this equipment will bring about a lessening of government restrictions against the private importation of machines, specifically by a reduction of import duties and a more liberal granting of import licenses.

Taking into account both direct U. S. aid and counterpart funds, Spain has about $12 million to spend on its highways currently—a large sum compared to the recent past. Most of this money will be spent on about 1,000 miles of national and regional routes that will benefit our airbases as well as Spanish transportation in general.

For some distance out from Madrid, the national routes are being built to the highest type four-lane-divided standards, and there is one six-lane route. Roads of this type are also to be found in the Barcelona area, but elsewhere two-lane roads are most common. Many of these are too narrow and are being widened to a minimum of 27 ft, plus two 8-ft shoulders of which 3 ft is paved for bicycles and animal-drawn carts. The surface of a good many roads consists only of 1 in. of asphalt on a macadam base, and this surface is being increased to 2 and 3 inches. Among the larger jobs may be mentioned a 700-ft bridge of stone-faced concrete girders on the approach road to Cordoba; a long tunnel at Despenaperros; a bridge at Merida to bypass a narrow old Roman structure; and the general widening and straightening of the approach road to Jerez, the headquarters of U. S. base work in the south of Spain.

Spain's public works, although often undertaken only to provide employment, have never been of the leaf-raking variety. On the contrary, they have frequently been more elaborate and sturdy than their potential service would seem to warrant. Still, the future may yet catch up with many of these facilities, and in the meantime they are not deteriorating because of any lack of good engineering or construction. Also, the Spanish workman is extremely industrious—the equal of any in the world—and his skill on the kinds of work with which he is familiar is likewise unsurpassed. Given the opportunity to work faster with the aid of machinery, the Spanish construction industry seems certain to turn out an outstanding job. The beginnings of this faster tempo, now to be seen in Spain, are an encouraging sign.

BIG STEEL GIRDER OVER THE SIDE is set in place using a 55-foot boom with the Tarlton Company's American Truck Crane. The operator experienced no difficulty in booming way out while lowering steel into the hospital's basement. American's power-controlled boom lowering assures fast, yet safe operation.

SETS STEEL, POURS CONCRETE, CLAMS ROCK 65 FEET OUT

American Truck Crane Shows 'Em Versatility in Missouri

The American 300 Series 25-ton Truck Crane recently purchased by the G. L. Tarlton Contracting Company of St. Louis has proved itself a master in many departments. On the building-expansion project for St. Louis' Jewish Hospital, the powerful American Crane clamshelled pier holes, set steel and poured concrete with an efficiency and ease that pleased its experienced operator. For instance, while clamming with a 75-foot boom, the American Truck Crane removed rocks and dirt from pier holes 65 feet out. With a 55-foot boom, it easily set 4½-ton transformers into the basement over the side of the rig. Like leading contractors across the country, the Tarlton Company has found that American's versatility, power and dependable performance help keep work flowing smoothly on their projects.

"A REAL ALL-AMERICAN," says Tennyson Fuller of the American Truck Crane. An operator with the Tarlton Company for 17 years, Tennyson says the American is by far the easiest and smoothest operating machine he has ever used. "American's controls are within easy reach, too," he says. Some machines get you all tired out just reaching for the controls."

When you buy American, you get the advantages offered by over three-quarters of a century of engineering and on-the-job experience around the world. For detailed information on American Crawler and Truck Cranes, see your American Distributor, or write American Hoist & Derrick Co., St. Paul 1, Minn.

700—9—11

SIGNS ARE EVER PRESENT—But other safety devices, like this steel stairway with good guard railings and non-slip treads, are part of the Lincoln Tunnel program, too. Program reaches all levels—from top managers to workmen—to achieve results.

CAMERA JOB—Vincent W. Mooney, left, safety engineer, uses camera to make friends, point up bad safety practices.

Lincoln Tunnel: Safety Program That Works

E. E. Halmos, Jr.
Managing Editor

A safety record that promises to be unique—for a tunnel construction job of such magnitude—is the key to one of the nation's biggest current construction projects.

That project is the $100 million Third Tube of the Port of New York Authority's Lincoln Tunnel. And the safety record looks this way:

In nearly two years since work started, with 16 prime contractors, numerous subs, and PNYA forces, crews varying from a few men up to about 900 at present, there has been only one fatality, and only 74 accidents of any kind involving loss of time or ratable disability. That's a total (as of the first of May) of 1,500,000 man-hours worked, with a loss to that date of 68,648 man-hours.

There are three keys to the program: (1) The fact that the Port Authority has undertaken to provide for the contractors on the job the compensation insurance required of them by law; (2) that there has been and continues to be a consistent, expertly guided, carefully worked out safety program that has gained the respect and enthusiastic cooperation of all concerned and (3) an enlightened program of preventive medicine.

• **Hard rock, soft silt**—Designed to ease nearly intolerable traffic congestion in New York's business center of Manhattan Island and the growing residential sections of northern New Jersey, the third tube is the first in some years (since the Brooklyn-Battery tunnel) to be built by the shield method, under air, through rock and silt underlying a stream bed.

Unusual also in that it is being driven from only one heading (on the West side of the Hudson River), the tube will have a total length of 8,013 ft portal-to-portal. Of this length, 1,750 ft is a cut-and-cover tunnel extending from the existing tunnel plaza on Manhattan Island to the Manhattan ventilation building, and 705 ft is a rock tunnel from the toll plaza in New Jersey to the ventilation structure on that side. The remaining distance is that under the river between the ventilation shafts.

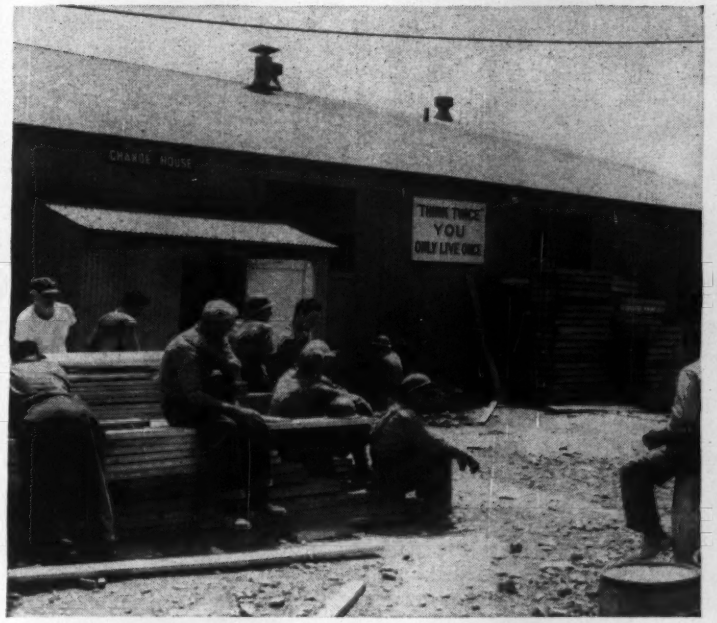
The under-river section is being driven behind a 31-ft 8-in. dia steel shield, powered by 28 hydraulic jacks, each with a 200-ton thrust against the last of the cast-steel rings which the shield leaves behind to form the outer shell of the tunnel. Through rock sections, the muck was admitted through the shield face and hauled away by electric dinkey engines and cars. With the shield in silt, Mason-Johnson-MacLean (a joint venture of Mason & Hanger, Arthur A. Johnson and MacLean-Grove, all of New York) expect the shield to displace all but 20% of the muck. What remains will be allowed to come through trapdoors in the cutting face, and lie on the bottom of the tunnel as ballast until the bore is completed to the Manhattan side.

After completion of tunnelling operations, a 14-in.-thick inner lining of concrete will be poured (in eight separate operations using movable forms), a 14-in. slab will go in as a roadway base, and a 5-in. slab for ceiling.

In connection with the tunnel itself, PNYA has also started a major job of revamping entrances and exit facilities on both sides of the river. The new tube—in conjunction with the parallel existing twin tubes—will make possible reverse-flow traffic in the center tube to increase capacity to four lanes in one direction.

• **Hazardous occupation**—So hazardous is tunnel work of this kind considered that the Port of New York Authority was informed, when it was ready to take bids on the project, that compensation premiums for work which would be done under the river should be figured at at least 53% of payroll. In addition the authority was informed that even at these rates availability of workmen's compensation insurance in the normal market for the contractors was doubtful.

"We were determined from the start that we would do everything possible to minimize accidents and



REST PERIOD between shifts, but no one is far from safety warnings. Slogans are written by men themselves, in popular contests, that draw as many as 200 entries.

REWARDS for safety work include free box lunches—very welcome the day before payday. Boxes include "Hey Breezy" —a PNYA cartoon safety booklet.

disabling injuries, and occupational illnesses in the construction of the Third Tube," says John M. Kyle, Port Authority chief engineer.

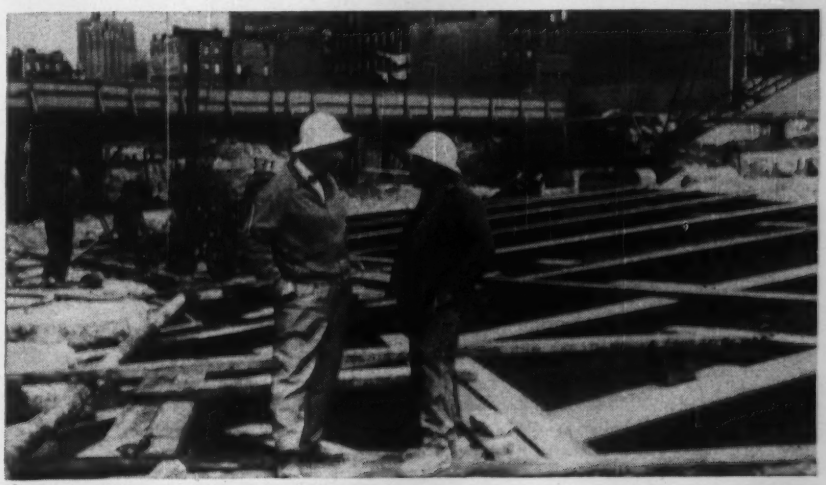
The authority found an answer in the recommendation of Insurance Manager William D. McGuinness that it purchase for the contractors the required compensation insurance. And it found three benefits: The chance to do an over-all safety job for the whole project; the knowledge that the job would proceed on schedule since the required insurance would be available and the belief that potential savings would result if the accident rate on the job justifies a smaller final compensation charge.

• **How to get safety**—But of course, it's not the insuror, but the program he follows that solves the problem of actually getting safety on the job. How can an owner set up a program and sustain interest in it and get cooperation from a group of men to whom an extremely hazardous occupation is a daily way of life, who rather pride themselves on their toughness and ability to take danger in their stride?

The answer doesn't lie in slogans, or occasional lectures, or reprimands.

It lies in a carefully thought out program, real knowledge of human beings and their actions, a knowledge of the work—and of union organization—and endless, painstaking, thorough attention to the program for the people who administer it.

PNYA started by hiring a special safety engineer—not simply by desig-



APPROACH WORK on the Manhattan side of Hudson River gets a look by safety engineer, who discusses problems with union shop steward Domenic Maglione.

UNION LEADERS, in cheerful discussion, are key part of safety plan. Jim McBride, Mooney, John Boyce and John Moran, of Compressed Air Workers, talk it over.

. . . Lincoln Tunnel safety program

nating a member of its force to that additional title.

He is Vincent W. Mooney, with 15 years of safety work behind him (and also a graduate industrial engineer who spent some of his apprenticeship as a construction superintendent)—a man with the easy charm of his Irish forebears who looks upon his safety work in the manner of a ministry.

Clothed by Kyle with full responsibility—and full authority—Mooney made it his first job to get acquainted, personally, with the men as they came on the job, and to study the situation. He consulted with veteran authority engineers with years of experience in tunnel work. Then he drew up a basic program that's borrowed in part from his previous experience in industry as well as construction. It's well worth study by any construction man.

• **Get 'em into it**—"The basic point," says Mooney, "is to get everyone—and we mean everyone—into the picture at once, and keep them in it. That's not easy to do on a construction job where (except for the sandhogs) your labor force shifts so greatly.

"So we drew up a basic program that makes every supervisor and every union official a part of the safety crew, makes every engineer a safety inspector. And it works."

Probably the surest and certainly the easiest way to reach construction workers is through their union organizations. And, working with a thorough knowledge of union organization, Mooney set up a three-level system of safety supervision.

Top level are union local presidents; next below are union delegates and business managers; next are union shop stewards. These groups of men are organized into three committees, which have free access to Mooney or other Port Authority officials and the contractors.

Note how it works:

The presidents of the local unions have the status and authority that puts them on a rank basis equal to that of any of the Port Authority's officials, or top men of the contractors' organizations when it comes to talking safety. They have thus the authority and the rank to discuss matters of policy affecting labor (workers are inclined, for instance, to look askance at some safety practices because they may look suspiciously like a speed up); they can discuss overall discipline.

The business agents and delegates are of a rank and authority that puts them on an equal basis with foremen and lesser supervisory personnel. Their business is to discuss working methods—they can quickly get unsafe scaffolding strengthened by discussing the matter with foremen.

And the shop stewards—on the same rank basis as the ordinary workmen—can and do pay attention to personal habits of the men, personal safety violations, recommendations for safer operations.

Contractor personnel are organized in similar groups to correspond with the labor side. Normally, they settle matters pretty much among themselves, just by a word—with very little paperwork. All have free access to Mooney and his officers at any time, however.

That's not all. Every engineering inspector of the Port Authority is thoroughly instructed that he is also a safety engineer—and is trained in this work on the job, along with his regular work.

All the men of whatever rank who have to do with safety are issued special white "hard hats," decorated with green crosses—and their authority is unquestioned by anyone, rank-and-file or supervisory.

• **Getting to know them**—Biggest part of the job, says Mooney, is to know the men—and to have them know you as a friend, and not a spy. To this end he is constantly on the prowl around the job on both sides of the river.

Sometimes he prowls the tunnels with a camera in hand—of the type that produces a picture within seconds after the shutter has been snapped. Sometimes he takes pictures of the men at work for their own pleasure. Sometimes he catches a man in an unsafe act and snaps the shot. "We give him the picture at once," he comments. "The man knows it won't be used against him—there aren't any negatives. But it's graphic demonstration to him of something he may not have realized he's been doing."

The authority has run a couple of slogan contests—the results are on every wall. Union leaders sat in on the selection. There aren't any prizes as such for winners—but there are occasional dinners, box lunches, a ticket to a ball game or a fight. That sort of "prize" gets good results too: In the last slogan contest, there were over 200 entries, 116 of which were adjudged usable.

In connection with this program, the box lunches (usually carefully timed for the day before payday or some other appropriate occasion) have also served as a medium for distribution of a cartoon booklet prepared by PNYA, whose central character, one "Breezy" is reminiscent of the Army's "Sad Sack" of wartime fame, and who is constantly—but humorously—in trouble. So far, says Mooney, "Breezy" is well received. Not a copy has been thrown away, at least anywhere where it could be found on the job.

• **Recreation too**—There's more to the safety job than that—on the level of human relations.

Sandhogs work (when under air) three hours on, three off, three on. By law, certain minimum matters for their comfort are provided: A cup of hot coffee on leaving the air lock,

(*Continued on page 48*)

Major Third Tube Contractors:

Mason & Hanger Co., Arthur A. Johnson Corp.	**Under river tunnel**	
MacLean-Grove & Co., Inc., New York City	**700-ft rock tunnel**	**$17,260,360**
Gull Contracting Co., New York City	**New York ventilation shaft, tunnel section between 11th and 12th Aves., other New York access tunnels**	**$16,541,594**
Grow Construction Co., N. Y.	**New Jersey portal, widening New Jersey plaza**	
	Widening various access roads on New Jersey side	**$ 2,577,551**
James Mitchell, Inc., Jersey City	**New administration building at Weehawken, widening approach roads**	**$ 1,739,555**
Cayuga Foundation Corp., N. Y. C.	**Expansion New Jersey plaza**	**$ 1,728,420**
Colmar Construction Co., N. Y. C.	**New York ventilation bldg.**	**$ 1,370,000**
Bethlehem Steel Co.	**Cast iron, steel segments**	**$10,620,971**
Merritt-Chapman & Scott Corp., N.Y.C.	**New marginal wharf to replace one removed from tunnel alignment**	**$ 997,373**

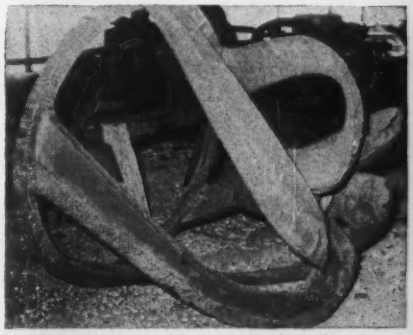
STOODY 21 EXTENDS SERVICE LIFE OF DREDGE PARTS FROM TWO MONTHS TO FULL YEAR

Dredges operated by the W. T. Burton Company, Inc., at Carlys, Louisiana, are used to recover shells from shallow under-water beds; this is the material from which the famous Louisiana shell roads are made. Thousands of tons of highly abrasive sand and silt are handled in the process.

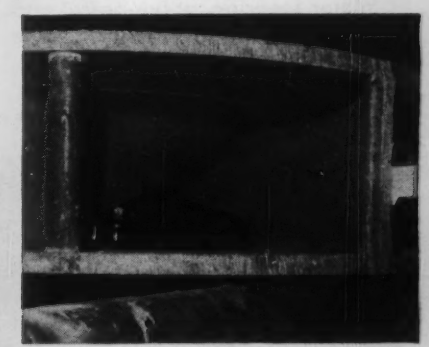
Normally the cutter heads and impellers in such operations last about 60 days; hard-faced with Stoody 21, service life has been increased to a full year. As the hard metal is gradually worn away, the parts are again hard-faced and go back into service. Huge savings result in increased parts life and reduced down-time.

Most heavy equipment subjected to severe abrasive wear and impact can be given similar extended service life with Stoody 21. This material is a high alloy electrode, applied either AC or DC, and its rapid burn-off rate makes it ideal for protecting large surfaces.

Detailed application and procedure information is covered in the Stoody Guidebook that you can get from your Stoody Dealer (consult the Yellow Pages of your telephone book). Your dealer has a free copy waiting for you ... or write to the company.



Entire inner surfaces of cutter head are hard-faced ... approximately 250 pounds of Stoody 21 were required for the cutter head and impeller pictured here. Amount of material will depend on extent of wear. Outer surfaces of cutter blades are hard-faced along cutting edges only.



The entire impeller hub and the leading pressure faces of the vanes are hard-faced with Stoody 21; hard-facing is repeated until side discs are worn out, and hub is then welded into a new unit.

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■

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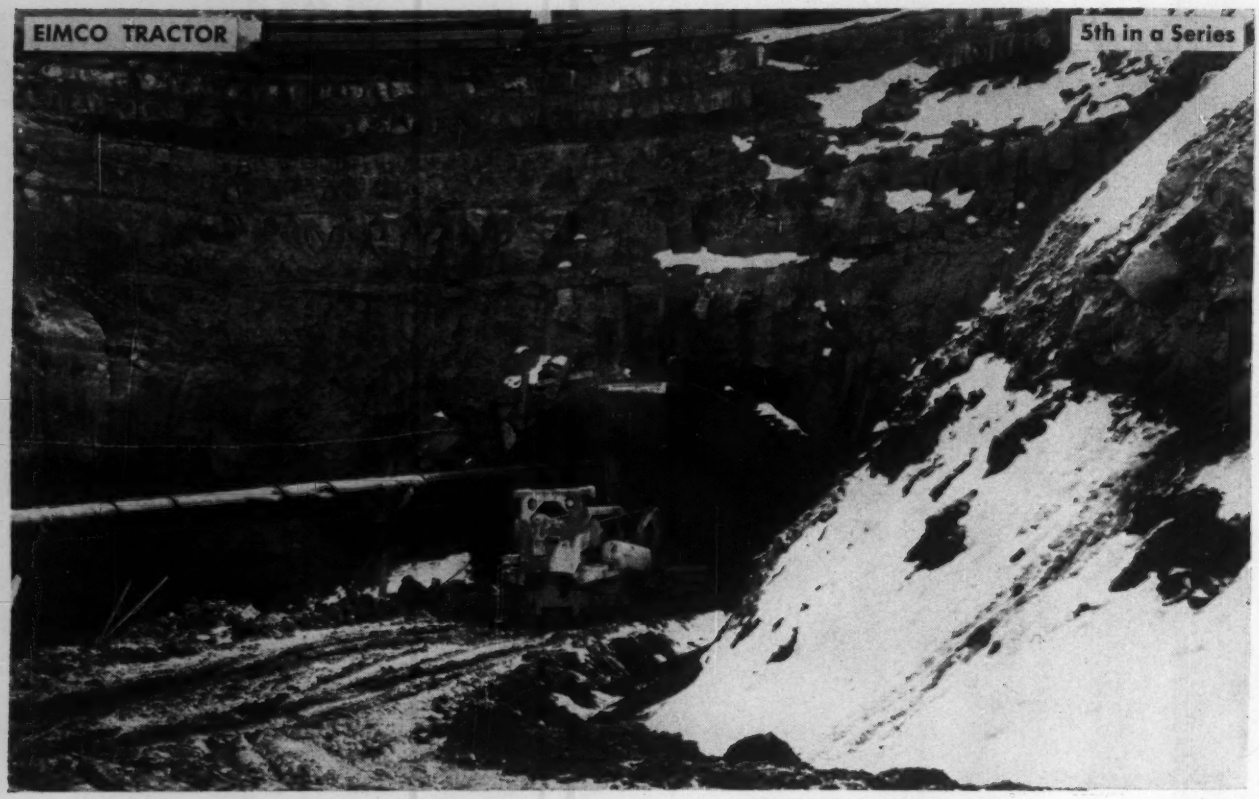
5th in a Series



The Eimco 105 Tractor-Excavator entering the portal at Glendo Tunnel.

50 Feet Per Day at Glendo Tunnel

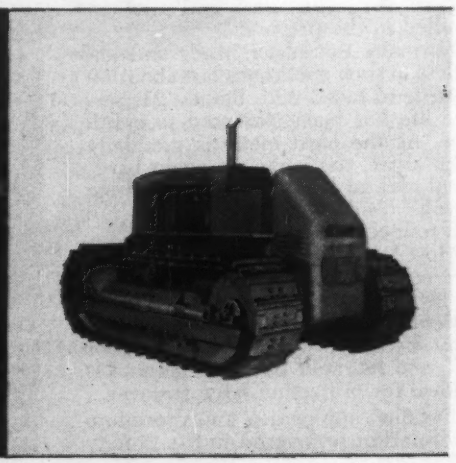
The regular day at Glendo Tunnel is two shifts. **This 21 foot circular bore, near Glendo, Wyoming, will be 2100 feet in length when completed.** All of the bore is being removed except enough bottom to provide a flat road bed for the trucks.

Water seepage, at the portal and again near the churn drill hole (approximately 1200 feet from the portal), slowed the progress of the tunnel to approximately half speed. In the dry sections, the crew was able to drill the full 10 ft. round, shoot and muck five to six rounds per two shift day with a **net gain of 50 feet of full face tunnel per day.**

Average for a complete cycle is just over three hours with 126 minutes for moving in the drill jumbo, roof bolting, drilling the face and moving out the jumbo. Fifty minutes is all that is required to load the 110-120 cubic yards of broken material with the Eimco Tractor-Excavator. **Average loading time per six cubic yard truck is 50 seconds.**

Roof bolting is done off the top of the jumbo as soon as the rig is moved to the face.

The Eimco 105 Tractor.



Average time required to load 6 cubic yard Dumptors is 50 seconds.

The Eimco is also used in the fill area during the drilling cycle to keep the fill level.

The Eimco Tractor is preferred equipment on tunnel, general construction jobs and any other work requiring heavy-duty dependable prime movers whether used with excavators, bulldozers or other attachments.

Here are some of the reasons for contractors' preference of Eimco Tractors: (1) greater production, (2) lower maintenance, (3) easier operation.

Greater production is illustrated in the Glendo Tunnel Job and on every job where an Eimco 105 Tractor is working. In an open hearth slag pocket cleanout job, the Eimco worked daily week in and week out, whereas competitive machines failed after only a few days operation. In hard clay, Eimcos with excavators out-performed all conventional loaders two to one. Against rubber tired loading equipment of the same bucket capacity, the score was nine trucks for the Eimco to two trucks for the conventional.

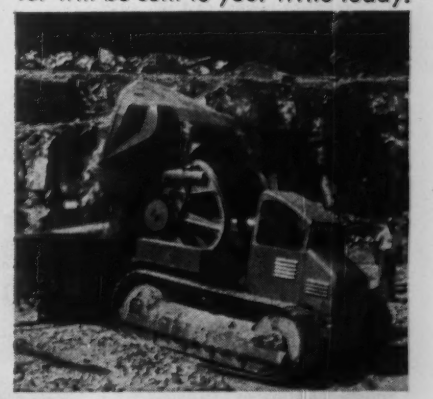
Maintenance on the Eimco Tractor is low in cost and easy to perform because of unit assembly. Each assembly can be removed or serviced without completely dismantling the tractor. Low cost is assured because Eimcos are built strong to give three to five times the service life of conventional tractors.

The Eimco Tractor is easy to operate, only two small handles control all movements of the tractor. It's made so that you can shift from forward to reverse or change speed in motion. Independent track control provides, for the first time, a tractor that can drive one track reverse and the other forward at the same time. Every operator is sold on the extra maneuverability of the Eimco Tractor.

Eimco Tractors with bulldozers or excavator attachments will move more dirt in any given period of time than any other equipment, per dollar invested.

Users of Eimco Tractors are enthusiastic! Why not investigate the finest in heavy-duty tractor equipment before you buy. Complete information on the Eimco 105 Tractor will be sent to you. Write today.

ALL OVER THE WORLD, wherever the work is tough and the going rough . . . Eimcos are doing a job that turns in a profit. The sturdy, dependable Eimco Tractor is built for hard work, heavy loads, and long life.



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. . Lincoln Tunnel safety program

clean change houses with showers and equipment for drying clothes.

PNYA and its contractors go further than that: There are more showers and other facilities than are required; there's television and radio, even an occasional movie between shifts, a cafeteria. Safety posters are everywhere—but in the change house they're coupled with current news photographs, pin-up pictures and the like. "And the men notice when we've forgotton to change the pictures, too," says Mooney wryly.

• **Devices come in**—On the physical side, the Port Authority and its contractors have cooperated fully with the unions and with outside agencies on the development and care of safety devices of all kinds—including proper clothing. The authority, for instance, found many of the men didn't want to wear heavy boots at their work, preferring lighter work shoes instead. By arrangement, the authority will purchase these safety shoes for the men (on their own funds, handled through the union) at a considerable saving. More than 100 pairs of shoes have been bought and distributed this way.

With the New York City and Weehawken, N. J., fire departments cooperating, the PNYA safety crew has developed rescue systems against any eventuality of fire or other accidents; all couplings and other fittings on safety lines are designed for instant use by equipment of either department.

Special "air pack" equipment has been designed to permit rescue workers to work up to 90 minutes without other oxygen supplies, should a blowout or failure occur in the air system. Three separate sources of power are available to the tunnel and its compressor house, to guard against any conceivable failure.

• **And medical**—An important part of the program—both physically and psychologically—is the elaborate provision for maintenance of health of the workmen, as well as medical assistance for almost any eventuality that the Port Authority has set up under direction of Dr. Samuel I. Kooperstein, PNYA medical director.

Emphasis in the medical program is on the prevention of illness, but the pocket-sized hospital clinic on the New Jersey side of the job site is completely equipped to handle anything from a cut finger to a bad case of the "bends," and almost up to a major operation. It is closely tied in with three hospitals nearby, so that immediate attention can be given to any serious accident.

The clinic is fully equipped to perform complete physical examinations of the men as provided by law (except certain tests for which the men prefer to go to their own doctors)—and do the same service for visitors and others who may have business in the tunnel or under air pressure.

Psychologically, the existence of the clinic has a not-surprising effect. Workmen know that the clinic is operated not by their employers but by the Port Authority, and have no hesitancy in reporting to it—as they are encouraged to do—for any minor illness or injury sustained on the job, or which they may notice after reporting to work.

• **Working methods**—According to M. L. MacLean, who is acting as project manager for the Mason-Johnson MacLean joint venture, the contractors are following conventional tunnelling methods in the Third Tube—methods that have been successfully used on the first two tubes (completed in 1934 and 1937), the more recent Brooklyn-Battery tunnel (ENR May 25, 1950, p. 30).

Interestingly, many of the men now in supervisory positions on this job worked on the first two tunnels at this location, and are carrying on in a long tradition.

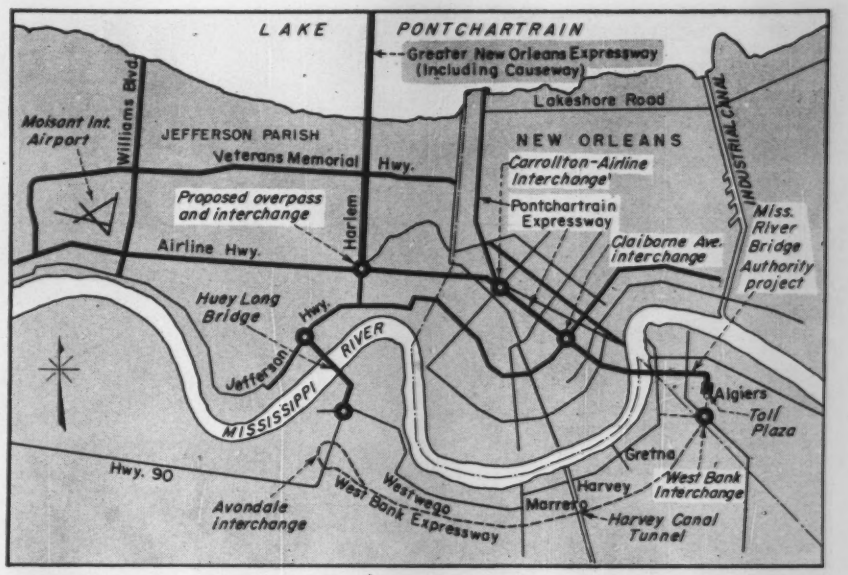
Work on the Third Tube started from a 55-ft-deep shaft sunk under an earlier contract by Walsh-Perini-Connolly of New York at the very base of the 160 ft high sandstone cliffs that form the Palisades of the Hudson River at Weehawken. A problem with this location for the tunnel contractor is that it is between the high cliffs and a 14-track freight yard of the New York Central Railroad's West Shore Division.

This location necessitated a heavy bridge across the tracks, equipped with tracks for dinkey engines and travelling cranes to bring materials into the work area, and also take out spoil.

Now that the tunnel has been driven under the railroad yards and is well out under the river, Mason-Johnson-MacLean is sinking an access shaft on the river side of the tracks, in order to facilitate materials handling.

Hugh E. Cronin is resident engineer for the M-J-M venture; Harry Druding is resident engineer for the Port of New York Authority. All design has been prepared by PNYA engineering offices, under supervision of Mr. Kyle.

THE SNAKING COURSE of Mississippi River and the wide expanse of Lake Pontchartrain, (right hand map) constrict vehicular access to city. New system of roads and bridges will ease the strain. In areas south of city (map below) new roads and two tunnels will help the situation.



$200 Million to Untie a Traffic Knot

New Orleans builds bridges, longest causeway, new streets and expressways to break out of encircling waterways

In a major struggle to break through water barriers, more than $200 million has been committed at New Orleans for a system of bridges, tunnels, highways and express routes.

Already under way in most of its parts, the program, sponsored by the city, three neighboring parishes (counties) and the state, includes:

- A $65-million, 2.3-mile bridge across the Mississippi River.
- A $53-million, 24.3-mile concrete causeway across Lake Pontchartrain.
- A $33.2-million Pontchartrain Expressway to connect the river and lake bridges and provide traffic relief through the heart of the city.
- A $9-million expressway along the west bank (actually, south of the city) of the river to connect the new river bridge with the existing Huey Long Bridge.
- Nearly $40 million worth of projects within the city to connect with new facilities, provide relief for heavily congested street areas.

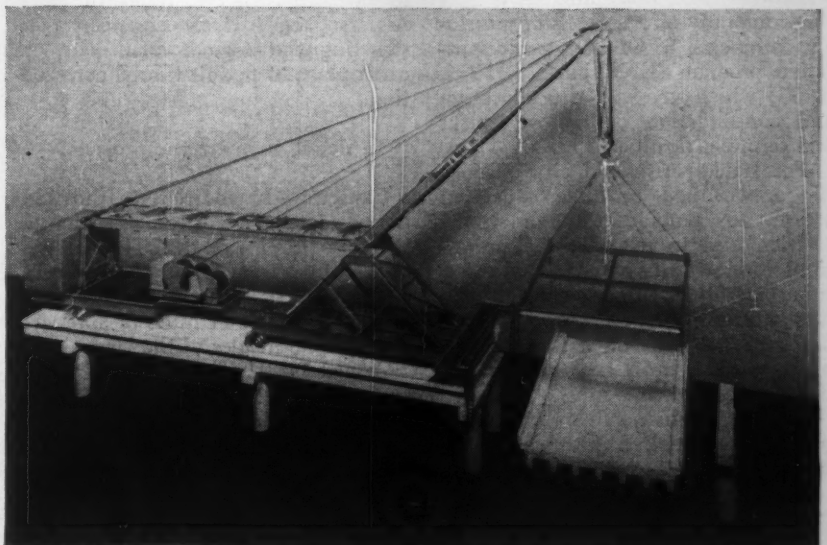
• Crescent makes trouble—Geography, which favored New Orleans highly in its original development as a river and sea port, is the principal trouble now.

The city (see map) is almost completely surrounded by water. The northern boundary is Lake Pontchartrain—a vast, nearly circular, shallow body of water—that is more than 24 miles in diameter. To the south, the Mississippi River describes a great crescent that actually makes the stream flow northward for a distance before it turns southward again toward the Gulf of Mexico.

To further complicate the matter, three man-made waterways also cut through the area: the Inner Harbor Navigation Canal (Industrial canal), which cuts northward from the river edge to join the Intra-Coastal Waterway; and the Harvey and the new Algiers canals, south of the city.

(Incidentally, a further bit of terminology is necessary for understanding of some of the work as described locally: Although the Mississippi actually runs East-West, and South-North in parts of its crescent, everything on the opposite bank from New Orleans is, in local parlance, on the "west bank".)

In this circumscribed area of low-lying, rich marshland, New Orleans sprawls like a huge fan, with its handle to the north on the lake, and its parts fanning inward from the arc of the river. This development, coupled with traditions of narrow, winding streets brought over by early French and Spanish settlers, and with the numerous waterways, has given rise to a crazy-quilt of streets on both sides of the river. On the "west" (south) side of the river, in the section known as Algiers, for instance, there isn't a straight route connecting the



TRAVELER, shown in model, will erect most of 24.3-mile Pontchartrain causeway, lifting precast, prestressed-concrete spans from barges to place on pile bents.

TUNNEL to carry four lanes of traffic under Harvey Canal is built behind sheetpiling halfway into channel. It will be part of West Bank Expressway.

numerous river ferries and the existing Huey Long Bridge.

With the rise of automotive traffic, Lake Pontchartrain has been an increasing source of annoyance, since the great body of brackish water necessitated a detour of up to 60 or 70 miles from points directly north to New Orleans itself.

• **Answers**—The new program is getting underway on the heels of a virtually-completed $50-million grade separation program (ENR Jan. 28, 1954, p. 57) which involved the relocation and consolidation of railroad tracks and terminal facilities.

For state, parish and city officials, the answer had to be a concerted action to provide through traffic arteries, and to improve communcations for residents of rapidly growing suburban areas. One glance at the four-lane, east-west Air-Line Highway, north of the city, on a Sunday evening, is enough to convince anyone that traffic relief is a must.

Working from north to south, the plans have resulted in this logical program: first a two-lane causeway across Lake Pontchartrain, stretching from near the north-side town of Mandeville to the city's lakeshore front. Next had to come connecting roadways to bring traffic into the heart of the city; next the Mississippi bridge to relieve the pressure on the Long Bridge and the antiquated, barge-like ferries; then a connecting road on the west bank to tie facilities together there.

The West Bank Expressway involved construction of a vehicular tunnel under the Harvey Canal; and State engineers took the opportunity to put Highway 31 under the new Algiers Canal. U. S. engineers constructing the Algiers canal had left earth plugs to permit tunnel construction.

In detail, here are the projects:

• **Causeway**—In addition to the reinforced concrete trestle structure, which will provide a 28-ft roadway with a turn-around and areas for disabled vehicles, this project will include more than 11 miles of approach roads on both sides of the lake.

Owned by the Greater New Orleans Expressway Commission—an agency of Jefferson and St. Tammany Parishes—the causeway will be, engineers say, one of the world's longest overwater vehicular bridges.

Normal overwater clearance will be 16 ft to put the deck above the level of violent storms on the shallow lake. To provide for pleasure and some commercial shipping, there will be three "humps" with 25-ft clearance, and two double-leaf bascule bridges.

Consulting engineers to the Expressway Commission are Palmer and Baker, Inc., of Mobile.

Work on the structure has already started, under a $30.7 million contract to the Louisiana Bridge Co., a joint venture of T. L. James Co. of Ruston, La., and Brown & Root Construction Co., of Houston. Louisiana Bridge has set up casting yards at Mandeville, near the northern terminus of the structure, to cast the long hollow prestressed concrete piles that will support the structure, the reinforced concrete pile caps, and ribbed, precast prestressed roadway sections.

The piles are to be 54 in. outside diameter (46 in. inside), cast in 16 ft sections, then joined by cables stressed to 150,000 psi. The superstructure, also cast at shore yards, in identical sections 56 ft long and 33 ft 2 in. wide. A total of 2,237 identical spans will be cast, barged out to the site, and placed by a specially built traveler.

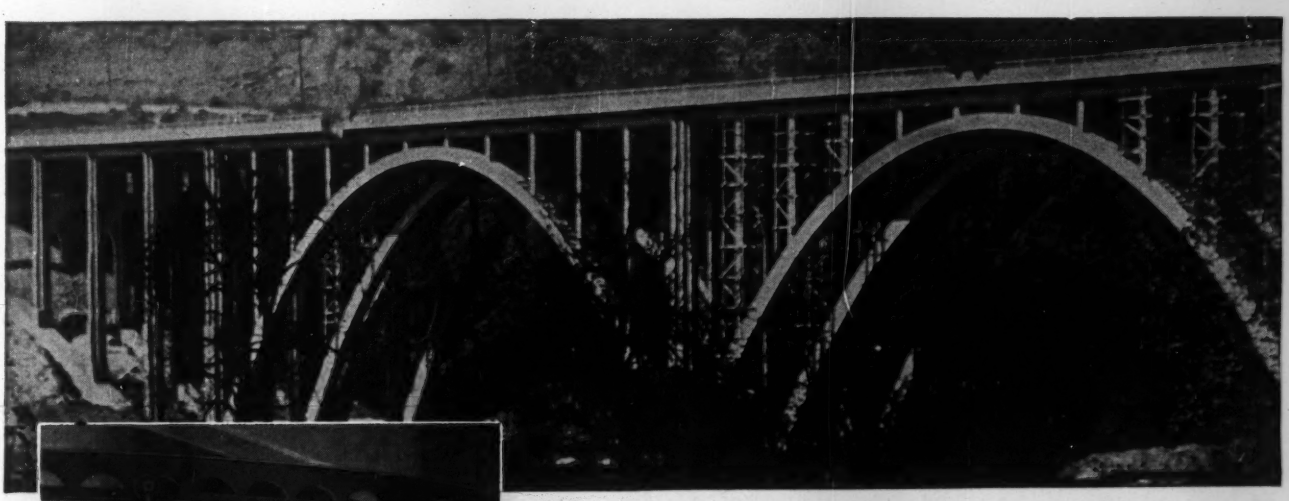
Approaches on the north end of the causeway will cost about $2 million, on the south end, about $4 million for connections to Harlem Ave. and the Air-Line Highway in New Orleans, and an additional $9 million for a four-level interchange at the junction with Air-Line Highway.

• **Pontchartrain Expressway** — This route will start above ground level at Camp Street in New Orleans, where it will tie into the approaches for the new Mississippi River bridge, running thence northward to Lake Pontchartrain. The expressway will pick up bridge approaches at a height of 24 ft above ground level, continuing as an elevated road to South Johnson St., where it will descend to ground level, continuing northward to an interchange with the Air-Line Highway. Further connections will also be provided to the Pontchartrain bridge.

This expressway, to cost an estimated $33.2 million, will be built by the State Highway Department. No contracts have been let as yet, and the only work done has been filling in the old New Basin Canal, on the expressway route.

• **Mississippi bridge**—Being built by still another governmental group—the Mississippi River Bridge Authority—this cantilever truss structure will be 2.3 mile long, including its approaches, and provide four traffic lanes to connect the east and west bank industrial areas.

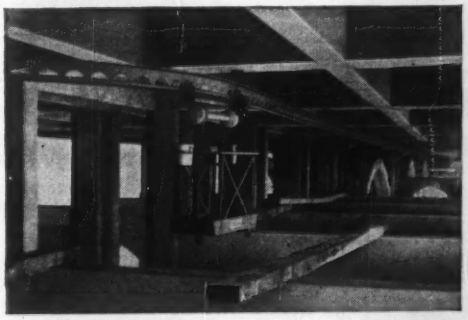
Leaping over industrial areas and quays on the east (New Orleans) bank of the river from its intersection with



Two Tramrail archbeam tracks, located between the sets of triple arches, run the entire length of this concrete bridge.

Traveling Platform *Facilitates* Bridge Inspection

Close-up inspection can be made quickly, safely and easily with this Cleveland Tramrail inspection unit.



The platform not only travels from end to end underneath the bridge, but it can be lowered between any pair of arches.

THE Penn-Lincoln Parkway Commercial Street Bridge, Pittsburgh, Pa., has been equipped with a Cleveland Tramrail system so that periodic inspection can be made to determine the condition of the bridge.

The system, which has two archbeam tracks running the entire length of the bridge, is provided with a hand-propelled traveling platform and hoist, making it possible to get close to all sections underneath, which otherwise would be difficult to reach.

Serious damage has been done to many bridges because of defects which have gone unnoticed. Cost of maintenance is reduced considerably if cracks in floor slabs and concrete pillars are discovered and repaired as they first begin to appear.

It is also important that close watch be kept of all-steel bridges and the Tramrail inspection equipment is not only a convenient, easy means of aiding this work, but is also a big help in making the repairs as well as for painting.

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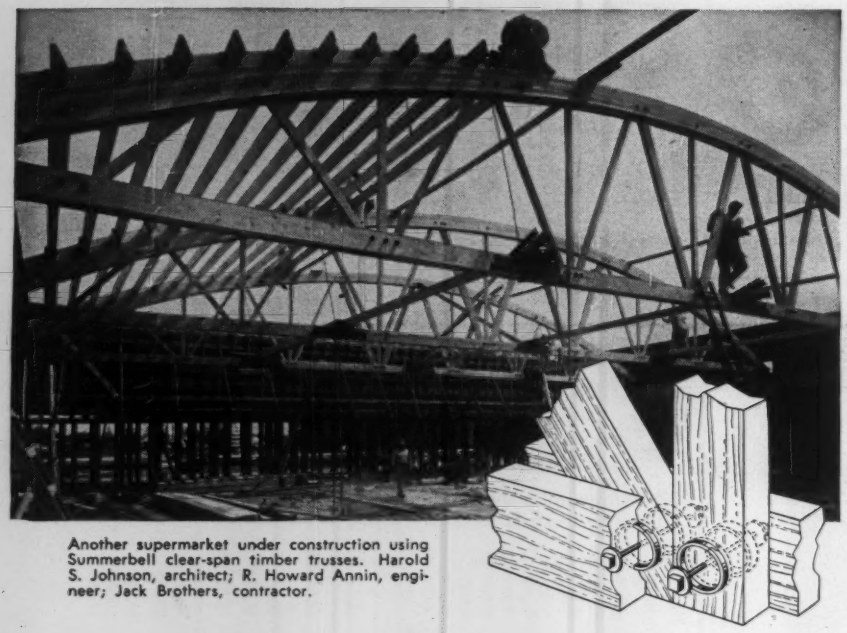

Another supermarket under construction using Summerbell clear-span timber trusses. Harold S. Johnson, architect; R. Howard Annin, engineer; Jack Brothers, contractor.

You can put more useful, post-free space into supermarkets and other structures economically

TECO wedge-fit connectors spread the load more evenly throughout the timber joint, thus bringing into play the full structural strength of the wood members. They are the efficient key to strength, permanence and economy in modern timber construction.

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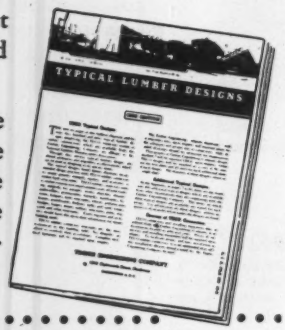
Typical roof truss designs, illustrating the TECO system of construction, are available without charge to designing engineers. These designs for light and heavy construction are listed in the booklet, "Typical Lumber Designs". Send for FREE COPY today.



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ENR-558

the Pontchartrain Expressway, the bridge will have a central cantilever span of 1,575 ft., said to be the longest in the U. S. On the west side, the bridge will come to ground at Shepherd Street in Algiers, where the toll plaza will be built.

With Modjeski & Masters as consulting engineers, contract for the first work—construction of four piers, one in the river bed itself—went to the Dravo Corp., of Pittsburgh. Starting work early in February under this $6.7 contract, Dravo is building a cofferdam in the streambed, to bring the river pier up from a clay bed, 180 to 190 ft below mean low water.

The bridge is scheduled to be ready for operation in mid-1958.

• **West Bank work**—The West Bank Expressway, picking up from the Algiers toll plaza, will be built by the highway department to connect with the Huey Long Bridge, and will include the Harvey Tunnel—now under construction after design by Palmer & Baker.

The Harvey Canal connects the Mississippi with Barataria Creek, has a channel 40 ft deep and is about 125 ft wide, and carries heavy intracoastal barge and tug traffic.

The tunnel is being built behind steel sheetpiling, closed off about halfway into the channel until work on one side is complete enough to allow the channel to be shifted over it. The tunnel is being built by a joint venture of R. P. Farnsworth and Silas Mason, both of New Orleans, and presents problems of construction considered quite usual by local men: The water soaked mixture of decayed vegetable matter, river silt, blue clay and ancient cypress roots that passes for "ground" in the area.

When completed, it will provide four traffic lanes.

The second tunnel, on Highway 31 at Belle Chasse, is being built completely in the dry behind earth plugs in the new Algiers Canal. It will provide two traffic lanes. Farnsworth is also the contractor at Belle Chasse, and Palmer & Baker were designers.

• **Other work**—In connection with the general program, much other work is also planned or under way. Included:

The Veterans Memorial Highway, designed to provide a traffic relief artery and a connecting link between Williams Boulevard and the Pontchartrain Expressway; widening of the Jefferson Highway (U. S. 90) to tie in with the Pontchartrain bridge approaches; a new Lakeshore Highway along the south side of the lake; a $4.2 million bridge over the Industrial Canal.

Alcoa® Aluminum Spells Economy on 2,442 New Ohio Turnpike Signs

Engineers who designed Ohio's new 241-mile turnpike kept an eye on economy as well as safety. They specified aluminum for 2,442 signs that direct and regulate traffic and thereby launched a stream of economies that will continue for years to come.

Right from the start, aluminum's ease of fabrication effected notable savings in manufacture. Its light weight kept shipping costs low and facilitated handling and erection. And its high strength—a match for wind loading in excess of 100 miles per hour, even on 10-by-20-foot signs—is insurance against storm damage.

But it's the corrosion resistance of Alcoa Aluminum alloys that will pile up the greatest savings. Even when vandalism or accidental impact breaks the message film, there will be no progressive corrosion or red rust to destroy utility. Signs stay on the job no matter how long repairs are delayed. Maintenance costs are sharply reduced.

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BOMBER-PARKING APRON for Homestead Air Force Base in Florida is shown here only about half paved with binder course.

Homestead Airbase: Vast Apron, Fast Paver,

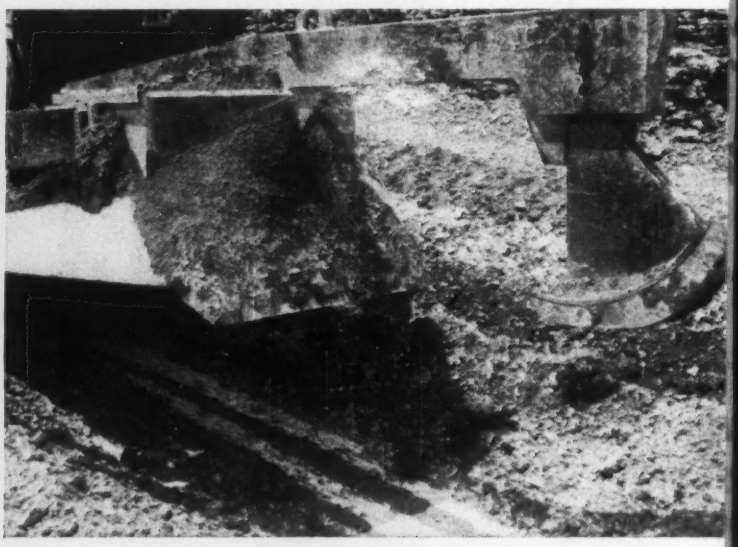
It looks impressive from the air, but you have to stand on it to sense fully the vastness of an apron now being paved for Homestead Air Force Base, near the southern tip of Florida. You have to get down close, too, to see that this vast paving operation, for parking and fueling a censored number of B-47 jet bombers, is a veritable proving ground for new construction equipment.

Also, pavement at Homestead is news, since only at Dow Air Force Base at Bangor, Maine, has the Corps of Engineers previously put down anything but test sections of bituminous paving with a tar-rubber surfacing. Experimental areas at Presque Isle, Maine, constructed in 1952 proved the material will resist damage from jet fuel spillage and the blast from pet aircraft (whereas asphalt surfacing will not). Homestead's 1,150 x 8,000-ft apron, taxiways, warm-up pads and the 1,000 ft of tar-rubber surfacing at either end of its 11,400 x 200-ft runway will furnish operating experience in climatic conditions about as different from Dow Air Force Base as Maine is far-removed from Florida.

Not only the pavement, but paving methods and equipment at Homestead also are news. Contractors putting down the big apron—and other areas to be surfaced with tar-rubber—have an array of construction machines almost as impressive as the Strategic Air Command's Stratojets to come.

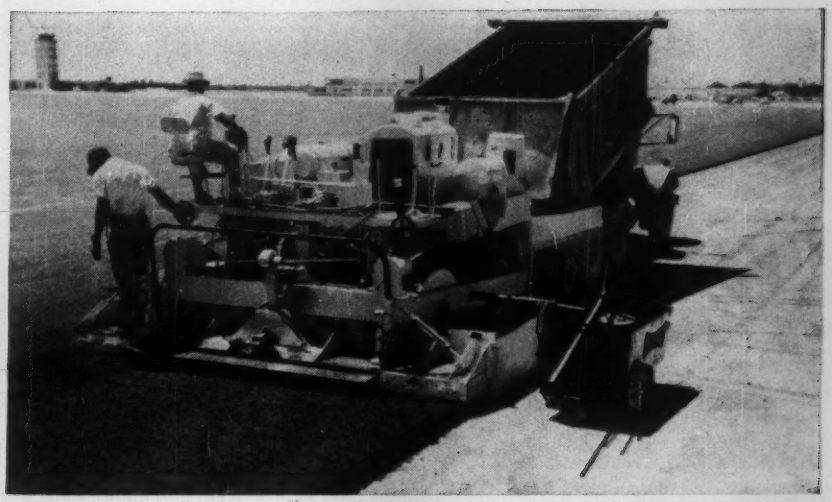
• **Base a "rehab"**—Homestead is called a "rehab" job. The base was active right up to the end of World War II, but when a late '45 hurricane blew the roofs off many of its buildings, the air service decided it no longer needed the base, and moved out. Now Homestead is being rehabilitated. A new main runway is being constructed; an auxiliary runway is to be preserved; and the great new apron is about 50% completed. A few of the concrete block buildings from World War II will be "rehabbed", and the one existing hangar will become the base motor pool. Three big hangars—each to hold two bombers or tankers— will be built, and construction of quarters for a 6,000-man force is well under way.

RIPPER digs porous Florida limerock for subgrade better and deeper than . . .



"ROCK PLOW" used there until now. Plow scrapes off 2 in.; ripper can dig 1 ft but is used shallower for better breakage.

ENR staff photos



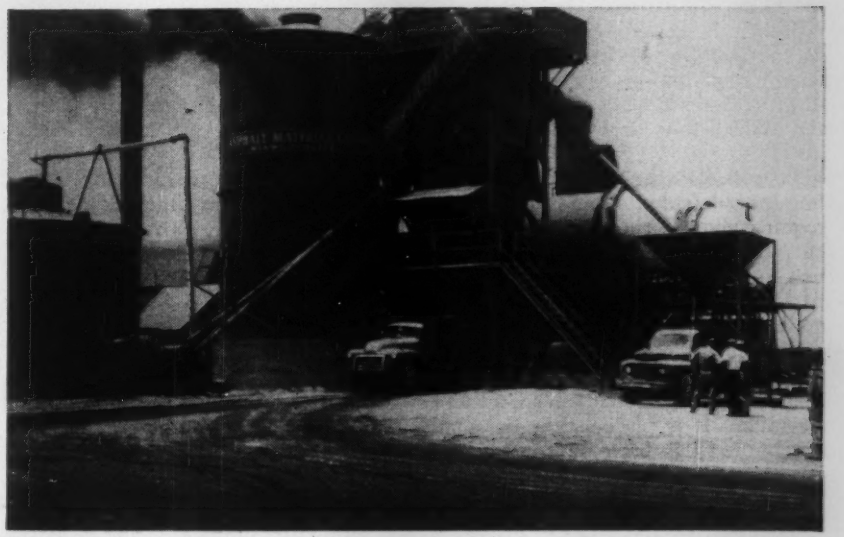
SPEEDY PAVER on rubber tires puts down tar-rubber surface (resistant to damage from jet fuel and blast) faster than . . .

Tar-Rubber Mix

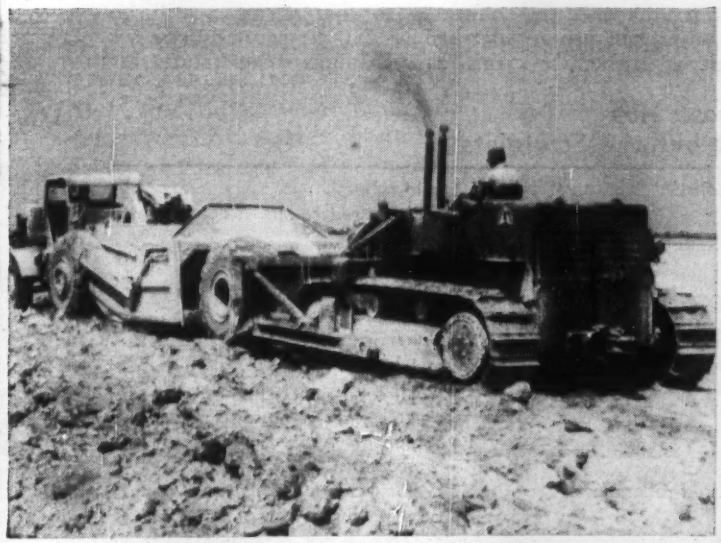
• **Paving not all**—In May there were 18 construction contracts worth over $21 million going at Homestead. Largest of these were: a $4.9-million contract on airmen's dormitories; $1.4 million on a base hospital; and about $4 million, in three separate contracts, on paving.

W. T. Price Dredging Corporation and Blythe Brothers Company—joint venturers, of Miami and Charlotte, N. C.,—hold two paving contracts worth nearly $3 million. J. Hilbert Sapp, Inc., of Orlando, Fla., will do a lesser portion of pavement under the third paving contract, which it holds along with work on several of the base buildings.

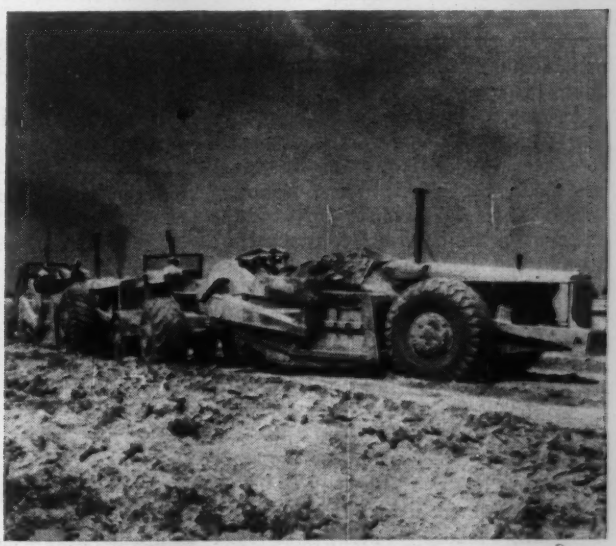
Pavement constructors at Homestead have a nearly ideal site to work



ASPHALT PLANT can supply it, and plant capacity is rated at 200 tons per hour.



TWIN-ENGINED TRACTOR pushes scraper to help it load ripped limerock.



TWIN-ENGINED SCRAPERS work as a team, pushing one another in loading operation.

AIRMEN'S DORMITORIES are of permanent type with shaded, aluminum windows.

on. This southeasternmost corner of the U. S. is a flat, rock area, with elevations varying only 3 to 7 ft above sea level. Geologically, the site is fossiliferous limestone, which is at the surface near the west end of the base and under 2 ft of marl at east end.

• **A "rock moving" operation**—Levelling the subgrade for areas to be paved requires about ¼ cut and ¾ fill. Where cut, the natural "limerock" is scarified to a 4-in. depth and recompacted to 100% of density. For fills, which do not exceed 50-in. in height, the embankment material is being borrowed alongside the south end of the main runway and hauled an average 1½ miles. It is placed after the marl overburden has been removed and is compacted, to 95% maximum density below 30-in. from finished pavement surface and to 100% in the upper 30-in.

• **Fast excavation**—Digging and moving the material for subgrade and base course is a smooth operation on which the contractor is putting machines to good use.

As noted, the borrow is limerock. Up to now the tool commonly used for excavating limerock in this area has been the "rock plow" (photo) which normally scrapes off a 2-in. layer at a time. The contractor at Homestead has found that a ripper can dig this rock to a depth of 1 ft, but by taking it down only to 6 to 8 in. the ripper will break up the rock small enough to be hauled directly to the fill without further crushing.

As the ripper does its work, the scrapers move in. One of the big new twin-engined tractors pushes most of the scrapers. But there are two 18-cu yd twin-engined scrapers, working as a team, loading themselves—each pushing the other in turn. These make 30 mph on the 1½-mile haul to the fill. Their 18-yd load compacts to 14 cu yd (compacted fill is the basis for payment).

Compaction on the fill begins with a segmented-wheel type roller that its owners say combines the sheepsfoot and steel roller to good advantage. Then there are heavily loaded grid-type rollers also said to be doing yeomen's service in breaking down and processing the limerock right in the fill. Specifications require rock to be graded from 3½ in. to dust.

Maximum density of subgrade material varies from 105.4 to 114.6 lb/cu ft, with optimum moisture varying 12.8 to 17.2%. Maximum density of base course limerock is 119.4 to 113.1 lb/cu ft with optimum moisture between 14.0 and 15.2%. Maximum density-optimum moisture was determined by AASHO method T-99-49 modified.

The selected base course material is compacted to a 6-in. layer at 100% density. The surface is power broomed and blown free of loose material, then straight-edged to a ¼-in. tolerance in 15 ft before it gets an asphalt prime coat. MC-O asphalt is applied by pressure distributor to a 0.10 to 0.15 gal/sq yd prime coat.

• **Pavement designs**—Next comes a 2½-in. binder coarse of normal asphaltic concrete—crushed limerock, screenings and 85 to 100 penetration asphalt cement. This is spread and compacted, then after 1 gal/sq ft of RC-2 cut-back asphalt as a tack coat, the 1½-in. tar rubber-surface course is laid.

Pavement design—both asphalt cement and tar-rubber—is given in the table on the next page. Quantities involved include:

Asphalt-cement binder course, 214,900 tons

Asphalt-cement surface course, 29,700 tons

Asphalt cement, 3,589,900 gal

Tar-rubber surface course, 106,530 tons

Tar-rubber cement, 1,408,470 gal.

The tar-rubber blend used is a synthetic rubber product of U. S. Rubber Company—called Sulfa-Aero-Sealz 3080 A. Shipped by tanker from the Rahway, N. J., plant of Reilly Tar and Chemical Co., this material is unloaded and stored in a heated tank at Port Everglades, Fla., 60 miles from Homestead. Tank trucks haul it over this distance without significant loss of heat.

• **The asphalt plant**—At the job, at the batch-type mixing plant of Asphalt Paving Co., of Miami, the tar rubber goes into a heated tank from which the mix is fed.

The 6,000-lb bituminous mixing plant is a manually controlled mixer with three dryers which get aggregate up to mixing temperature. Asphaltic concrete is mixed at 300 F. For the tar-rubber mix, the third dryer is unheated so that aggregate will be batched at 250 F; specifications set this as maximum temperature for

Homestead Airbase Has Everything on It but the Stratojets

Scrapers (all self-propelled):
- 9 18-cu yd
- 2 18-cu yd (twin engined)
- 1 15-cu yd
- 5 12-cu yd
- 2 7-cu yd

Tractors:
- 1 380-hp (twin engined)
- 3 175-hp
- 5 185-hp
- 1 167-hp

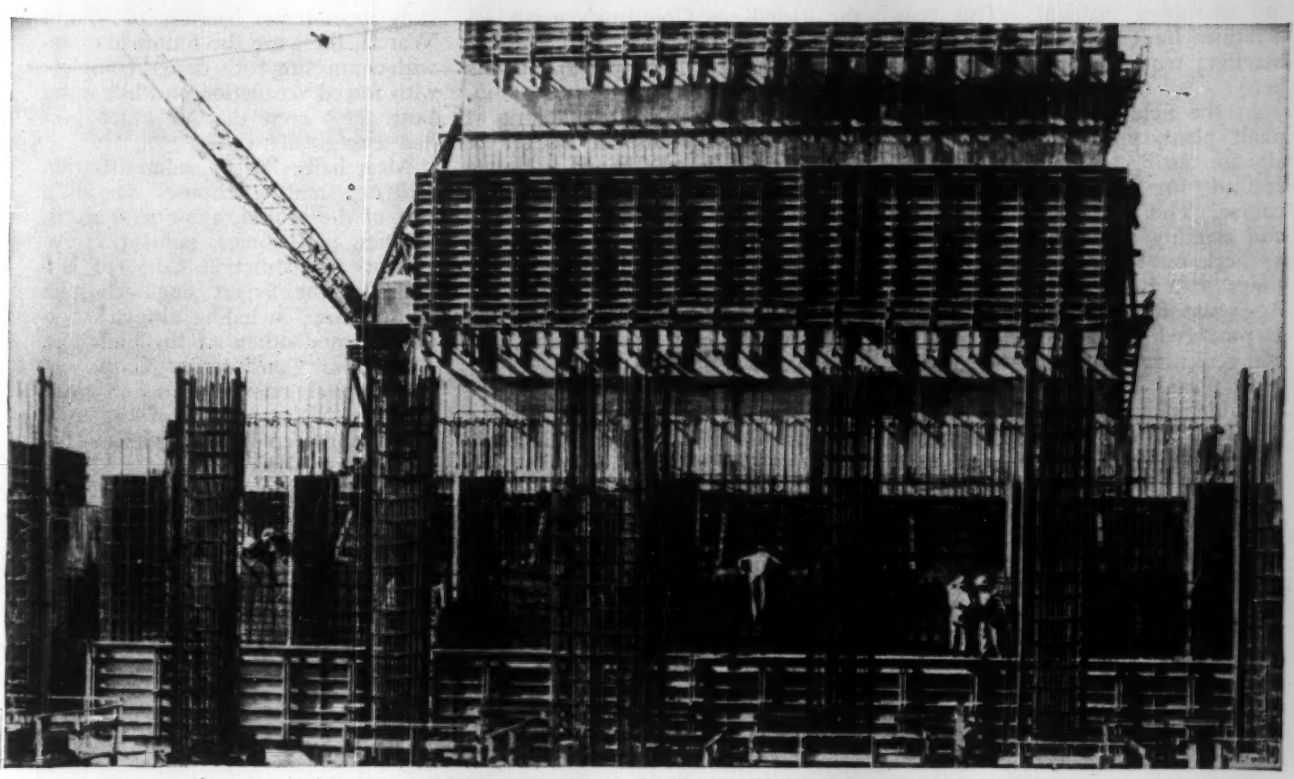
Compactors:
- 2 50-ton rubber-tired rollers (self-propelled)
- 7 10-ton, 3 wheel rollers
- 1 Segmented-wheel type roller
- 3 sheepsfoot rollers
- 12 grid rollers
- 14 rubber-tired rollers (tractor-drawn)

Excavators:
- 2 2½-cu yd draglines
- 1 1½-cu yd dragline
- 1 1½-cu yd backhoe
- 2 ditchers

Pavers:
- 2 rubber-tired paver-finishers

Miscellany:
- 12 motor graders
- 1 truck-mounted auger
- 3 water wagons
- 2 service trucks with grease rigs

Note: This is not a complete list. It refers only to the Price-Blythe paving work.

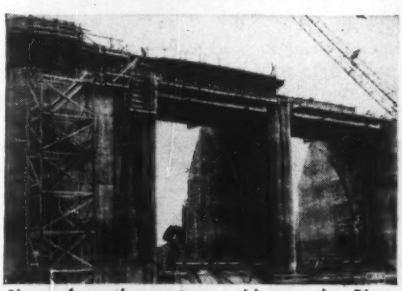


Close-up view of discharge side of one of the 14 main intake bays on The Dalles Powerhouse structure. The front span of Blaw-Knox Wall Forms is in a single 86-ft. long assembly to form the gallery wall. Forms are approximately 18 ft. high. Also in use on this project are 8 Blaw-Knox CAC-4 air-operated 4-cu. yd. Concrete Buckets.

Concreting on the Dalles Project Simplified with Blaw-Knox Steel Forms

Improved Forming Method Result of Experience on Chief Joseph Powerhouse

● Greatly simplified forming methods, which are speeding the concreting pace and cutting pouring costs on the Columbia River Dalles Project, are the result of a radical departure by Blaw-Knox Steel Form engineers from the accepted form design generally used on this type of structure. This new design proved so successful in concreting the Chief Joseph Dam, from a standpoint of easy operation and economy, that The Dalles Powerhouse Constructors were eager to apply similar Blaw-Knox Steel Forms to their project.



Shown from the upstream side are the Blaw-Knox Steel Forms for the 60-ft. spillway span and bridge deck. The forms are self-supporting over the span. They have adjustable hanger type connections at the ends and are also designed for adjustable camber.

Because of the dramatic improvement in concreting with these 18-ft. high prefabbed Steel Wall Forms, pours up to 86 feet long are accomplished in some of the massive solid walls. Wherever possible, large sections of forms are utilized to simplify the job of transferring panels from one unit to another, and to hold tie rods to a practical minimum. The forms are used progressively from bay to bay with the same lift placed in each unit at 3-week intervals. This plan of construction permits greater re-use of forms than is ordinarily possible on powerhouse jobs.

The Dalles Project is a typical example of the way Blaw-Knox Steel Forms and Blaw-Knox Engineer's Consultation Service can help reduce the number of necessary steps in your forming operations, save time and materials, and cut concreting costs. Whether you're building big dams, tunnels, bridges, retaining walls or sewers, call in Blaw-Knox engineers in the preliminary planning stage to solve difficult forming problems *before* they're on the drafting board.

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the tar-rubber material. (This temperature limit is the only special handling requirement of the tar-rubber.)

In the field laboratory at the asphalt plant, procedures used normally for testing asphaltic concrete are applied to the tar-rubber surface course. The Marshall test for flow and stability and extraction tests as a check on the mix are made four times and twice daily, respectively. Aggregate for the asphaltic concrete is produced in a complete crushing and screening plant alongside the asphalt plant. The quarry from which the limerock comes is also nearby. All three are about a two-mile haul from the paving work. Dump trucks haul the paving material to the work in 14 to 18-ton loads and deliver it at between 200 and 250 F.

And that brings this story to the paving equipment and methods.

• **Paver stars in equipment show**—The list of construction machines, ripping up the limerock, moving it to fill, compacting it and then paving it, is impressive (see p. 56). And the number of relatively new items of equipment (see pictures) is also impressive. But easily the center of attraction at Homestead is a new rubber-tired machine spreading pavement faster than the job's plant can make it.

The machine drawing visitors' attention and contractors' approval is the Blaw-Knox Company's newly acquired and improved paver-finisher (ENR Aug. 26, 1954, p. 78). It puts down the apron pavement's 2½-in. binder course in a 13-ft wide strip at an average daily rate of 38 ft per minute. Top speed attained at Homestead by this machine has been 54 ft per minute; top production 1,100 cu yd one day.

There is now a second B-K machine on the job, but it is strictly a stand-by. The one working machine puts down 200 tons per hour with waiting time to spare.

Following the paver-finisher are two 3-wheel 10-ton rollers and two tandem (8 and 12 ton) rollers doing the compacting. Final rolling is done by a self-propelled rubber-tired roller loaded to 8 tons.

The base builders have until the end of this year to complete the paving work, but the Air Force may bring some aircraft to Homestead in the fall.

• **Other than paving**—As paving progresses, the even larger work of base building construction is well under way. Of the 6,000-man force to man this facility, nearly half will live off the base. But that still leaves the need for eighteen 200-man dormitories. These three-story reinforced-concrete and cement block buildings are of permanent type, quality construction. A far cry from the two-story wood-frame barracks of World War II, these are the four-man-room-with-connecting-bath design complete with forced ventilation and hot water heat. Not even the Air Force ever had it so good!

Mess halls, BOQ's, administration buildings and warehouses are all a part of the project, along with roads, utilities, fuel storage, railroad, etc.

Bruce Construction Corp. of Miami, has the largest single contract on the base, including airmen's dormitories and others of the buildings. Five Boro Construction Corp. has the hospital, railroad spur and some utilities. Major portion of the utilities is under contract to McKoy-Helgerson Co., Greenville, S. C.

On the paving, project manager for Price-Blythe is Joseph Maier; project manager for J. Hilbert Sapp, Inc., is Robert Ludwick.

The Corps of Engineers has a total of 47 men in supervision on this sprawling job with all its various components. Lt. Col. J. S. Hassell is resident engineer. The chief supervisor and inspector is J. E. Womeldurf. Frank Robinson has charge of roads and airfield paving; Byron Schumacher is paving engineer.

The project is under the Jacksonville District, Corps of Engineers, where Col. H. W. Schull Jr. has until recently been District Engineer. His very recent successor has been Col. E. E. Kirkpatrick.

Homestead Pavement Design

BINDER COURSE

For 200-psi Tire Pressure — Limerock, Limerock Screenings & 85-100 Penetration Asphalt

Sieve size	Specified limits	Job mix approved	Limerock 12%	Limerock 22%	Limerock 18%	Limerock C. scr. 40%	Limerock F. scr. 8%
1½ in.							
1 in.	100	100	100				
¾ in.	89–99	94	50	101			
⅜ in.	74–84	79	6	55			
No. 4	—	—	4	11	100	100	
No. 10	43–53	48	0	2	8	95	
No. 20	30–38	34		0	4	63	
No. 40	—	—			0	44	100
No. 80	16–24	20				31	99
No. 200	8–16	12				10	95
% bitumen	3.5–6.5	5.0				2	53
Grade bitumen	5.2–5.8	5.5					
	AP-3	AP-3					
Stability-lb (Marshall)	1,000 or greater	3,650					
Flow 0.01 in.	16 or less	8					
% voids total mix	3.5–5.5	4.4					
% voids filled	70–80	73.2					
Density-lb/cu ft		138.5					
Theoretical density		144.8					
Stripping %		Negligible					
Swell %		0.02					

SURFACE COURSE

For 200-psi Tire Pressure—Crushed Limerock, Limerock Course of Fine Screenings and Surfa Aero Sealze 3080A Tar-Rub. Blend

Sieve size	Specified limits	Job mix approved	Crushed limerock C.A. 17%	Crushed limerock Intermed. 13%	Limerock coarse screenings 59%	Limerock fine screening 11%
1½ in.						
1 in.						
¾ in.	100	100	100			
⅜ in.	88–96	92	55			
No. 4	81–89	85	11	100	100	
No. 10	64–72	68	2	8	95	100
No. 20	46–52	49	0	4	63	99
No. 40	34–40	37		0	44	96
No. 80	25–31	28			31	92
No. 200	10–16	13			10	64
% bitumen	3–6	4.5			2	30
Grade bitumen	8.4–9.0	8.7				
	Tar-Rubber	Tar-Rubber				
Stability-lb (Marshall)	1,000 or greater	3,400				
Flow 0.01 in.	16 or less	9				
% voids in total mix	1.5–3.5	2.9				
% voids filled	80–90	84.2				
Density-lb/cu ft		140				
Theoretical density		144.1				
Stripping %		Negligible				
Swell %		Negligible				

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paper mills

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Temple B'Nai Amoona. Architect: Eric Mendelsohn, A.I.A. Engineer: Isadore Thompson, San Francisco. Fabricator: Mississippi Valley Structural Steel Co., St. Louis. Erector: Ben Hur Construction Co., St. Louis. General Contractor: I. E. Millstone Construction Co., St. Louis.

The temple, assembly wing, and school are tightly arranged around an enclosed garden. The deep columns together with the overhang of roof slab form a system of sunbreaks.

Erection of the curved beams. They are 42 in. deep at their bases, tapering to 3½ in. at the edge of the cantilever. The flanges and web were welded together in the shop and each rib shipped to the field in three sections. They were then erected end to end on falsework, and the splices welded.

Gracefully curved beams of USS STRUCTURAL STEEL

give unique Synagogue exalted, dynamic look

Temple B'Nai Amoona in St. Louis, Missouri, consists of a temple proper, foyer, assembly wing, school, library, administrative offices, and chapel. The main roof of the temple is supported by dramatically curved and tapered steel beams, which rise, then cantilever out 26 feet from their supporting columns. The supporting columns extend down to a steel girder in the assembly roof. This cantilever overhang acts as a sun shade for the west wall's glass screen, and is so well balanced that the long, arched beams seem almost to be pulled down to the supporting columns under tension, instead of resting compressively on them.

The temple proper has a seating capacity of 600 persons but the lower assembly wing may be opened to become a continuation of the temple, increasing the capacity to 1500. The roof structure of the lower wing is steel joists supported by 36-foot WF spanning beams, under a 2½-inch concrete slab.

Without Structural Steel, thrilling, imaginative ideas like this graceful cantilever application would be highly impractical. USS Structural Shapes are available for construction of buildings of all sizes—from small churches and schools to mammoth aircraft hangars and skyscrapers. The versatility of Structural Steel is excelled by no other load carrying building material. Yet it is the most economical of these materials—and the strongest.

Structural Steel will withstand more abuse than other structural materials, effectively resisting tension, torsion, compression and shear. Once enclosed in buildings, it lasts indefinitely. Maintenance is unnecessary. It may be riveted, welded or bolted, and may be erected in any weather in which men can work. Since steel members are fabricated indoors, weather can have no effect on the quality of workmanship. For further details return the attached coupon.

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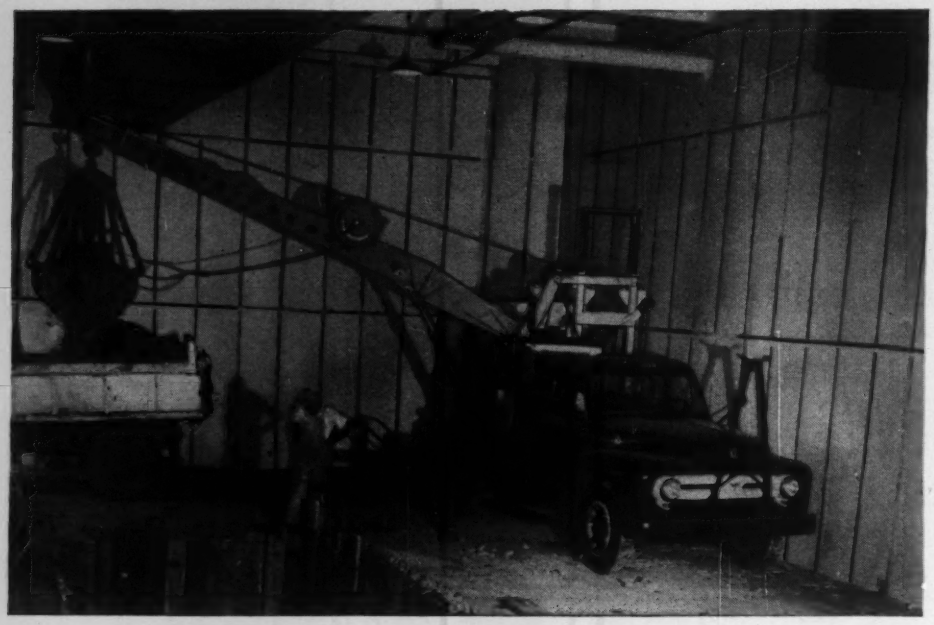


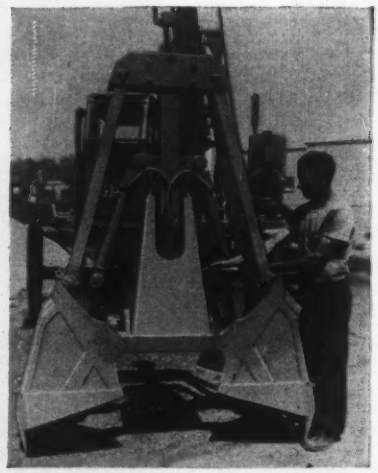
Here's precision hydraulic control in action — a Bucyrus-Erie Hydrocrane digging footings inside a building for a large press. Note the cramped quarters. Anything but the most exact control could mean damage to walls or ceiling.

Costly Jolts Gone—Fluid Action Hydrocrane Gives Cushion Lifts to Growing Range of Jobs

About seven years ago the revolutionary Bucyrus-Erie all-hydraulic Hydrocrane first demonstrated its almost unbelievable precision control. On one test it lifted, swung and set down a pyramid of six brimful drinking goblets, carried on a 1-ton steel test slab — without spilling a drop of water. Today greatly improved Hydrocranes and Hydrohoes with greater capacity and far faster line speeds are bringing this outstanding hydraulic precision to an ever increasing number of jobs.

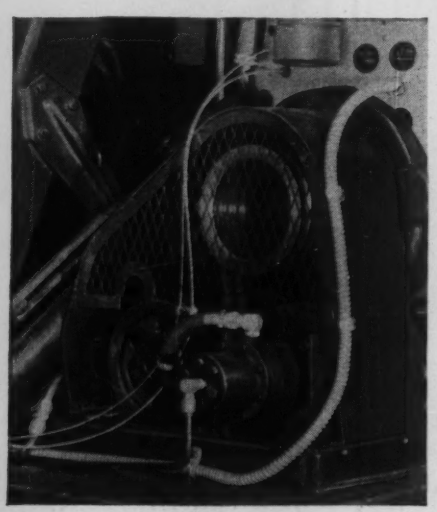
Every crane or hoe function is fully hydraulic — swing, boom hoist, line hoist, boom telescope, outrigger control, clamshell bucket close.

You must *see* a Hydrocrane in action — digging foundations, spotting concrete buckets, erecting anything from steel beams to plate glass — to realize fully the advantages of fluid power and control. Arrange a demonstration now! Write today.



NEW 3/8-YD. CLAMSHELL HAS 42 PERCENT MORE BITING FORCE

This new hydraulically operated clamshell is closed by means of hydraulically operated twin rams instead of a single center ram. This feature plus improved design for greater leverage provides 42 percent more force on lips at point of closing. Bucket is equipped with quick disconnect coupling which can be attached or detached from bucket in a few seconds without tools — and without oil spillage.



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Hydraulic pumps driven by a compact engine, conveniently mounted on revolving frame, power the Hydrocrane. Hundreds of parts eliminated — no clutches, brakes, gears — no drums, chains, sprockets, or operating lever linkage. 63H55

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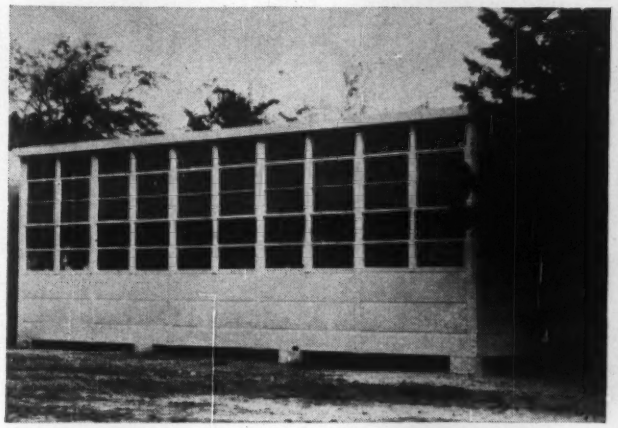
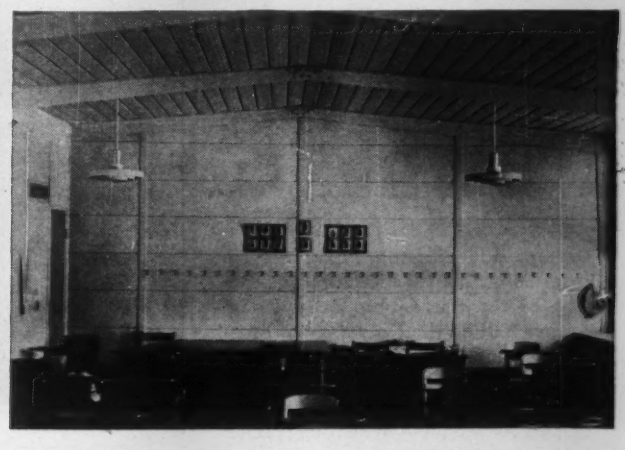




Portable Schoolroom Follows Population

A new approach to eliminating school overcrowding has been initiated in South Carolina through the development of a steel-paneled portable classroom. Using light-weight cellular steel panels which serve as a structural element as well as an interior material, the classroom has been used to follow shifting populations throughout the state's school districts.

The portable classroom, complete in itself and light enough to be moved on a standard-size truck, can follow the population movement to give school facilities where needed.

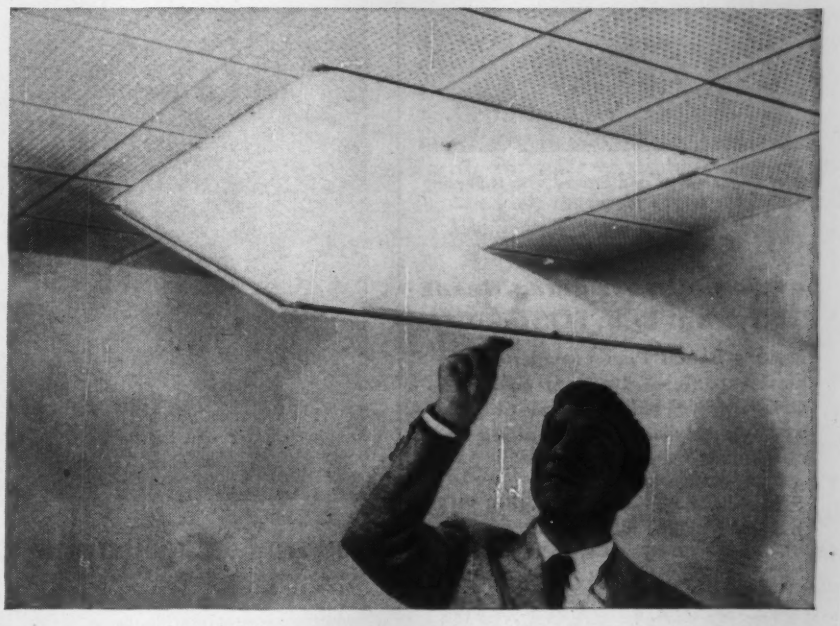
The light-weight, cellular panels which are used for the floors, wall and ceiling of the portable classroom are said to make possible fast erection and extreme portability. Also, they are not only a structural element but also an interior finished material. This means that time can be saved and costs reduced, since after the panels are erected and the building completed, no additional material need be applied to the interior. The smooth, flat surface of the steel panels not only facilitates cleaning but provides an excellent base for a fine coat of paint if desired.

A feature of the portable classroom is the ceiling which is acoustically treated to give sound conditioning qualities. The ceiling panels are perforated on the under side and backed with acoustical elements inside the panels. Because the acoustical elements are supported and raised away from the perforations, the surface of the ceiling can be washed or painted with no fear of dampening the fibers inside the panels and lessening acoustical efficiency.

The portable classroom when constructed has a pitched roof and a row of full windows running the length of the entire unit. The building is 22x30x12 ft in size and weighs approximately 12 tons. The unit is heated in the winter and cooled in the summer by its own heating and cooling plant and can be assembled adjacent to a permanent building to offer additional facilities for as many as 36 school children.

When the classroom has served its purpose at a particular location and is needed in another school district, it may be moved without dismantling. The portable unit is connected to a parent school house by power line, which can be disconnected in a matter of minutes. The only other connection to be loosened is the pipe that leads from the furnace to the oil drum. The classroom can then be raised onto a low-bed truck ready to be moved in approximately one hour. DETROIT STEEL PRODUCTS CO., 3159 GRIFFIN ST., DETROIT 11, MICH.

(*New Products continued on page 64*)



Ceiling Dome Insulates and Diffuses

The Wascolite Ceiling Dome is designed for installation at ceiling level under the plastic-domed skylights. Made of acrylic plastic, it provides added insulation and daylight diffusion, and is said to be especially suitable for schools, residences and commercial buildings. It can be used to make an attractive, flush ceiling and to conceal lighting fixtures. Wasco Products, Inc., 93P Fawcett St., Cambridge 38, Mass.

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Prompt and exacting Piling Service from Foster helped speed-up construction of the foundation for the new science hall on the University of Pittsburgh campus.

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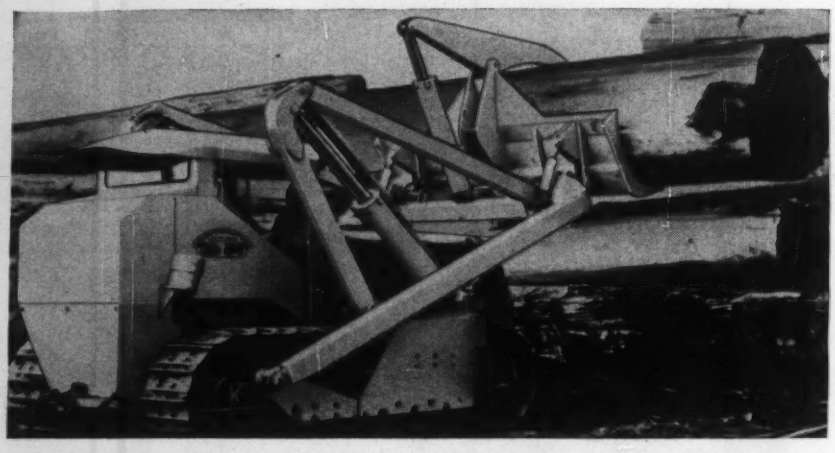


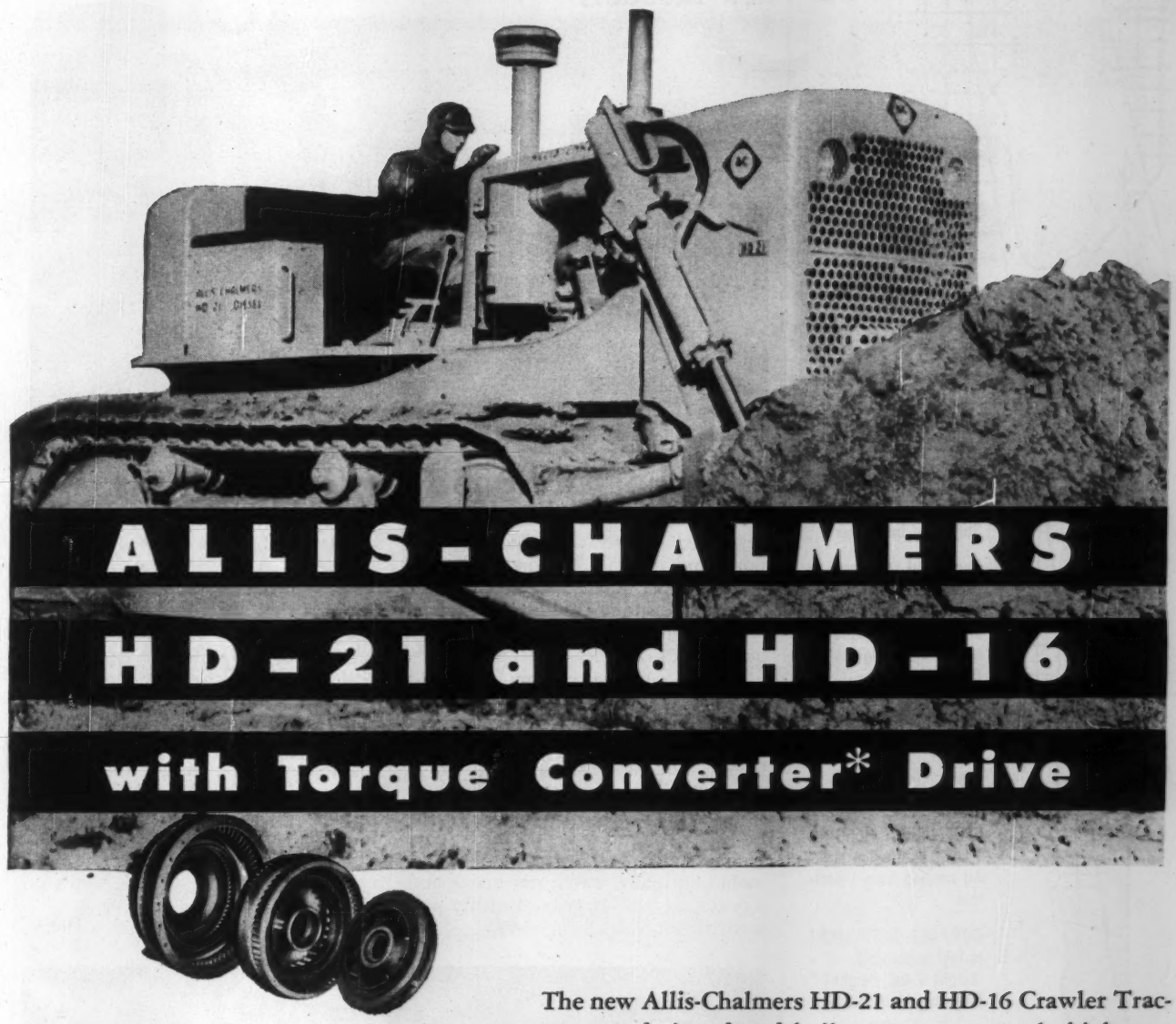
Loader Attachment Handles Pipe, Piles

A front-end loading attachment, designed for mounting on Models 6-C, 7-C and 8-C hydraulically operated Austin Overshot Loaders, consists of an open end bulldozer blade on which is mounted a large fabricated steel hook. Actuated by a double-acting hydraulic cylinder, the attachment can load logs, piling, large diameter steel pipe, timbers, culvert and sewer pipe as well as other materials. The loader can also be used for clearing, road building and other bulldozing by raising the hook to the fully-open position. The unit is available with a modified oil reservoir to permit the installation of a rear-mounted winch. AUSTIN DIV., CENTRAL OHIO STEEL PRODUCTS CO., GALION, OHIO.

(*New Products continued on page 66*)

Powered Wheelbarrow Unit Hauls ¾-Ton Load

A powered wheelbarrow, designed for building contractors, hauls a ¾-ton load on a chassis only 64 in. long and 31½ in. wide. Further, it is equipped with controls that reportedly allow the most inexperienced laborer to operate the unit safely and efficiently. Its ability to handle large loads eliminates in-between handling of materials. According to the manufacturer, this can quadruple the productivity of manpower. Another feature is the method of quick changeover from dump bucket to flatbed. This enables the contractor to change from hauling concrete to hauling solid materials. The dump bucket has rounded corners for cleaning and hauls 10 cu ft struck and up to 16 cu ft heaped. The Prime Mover Co., Muscatine, Iowa.



ALLIS-CHALMERS
HD-21 and HD-16
with Torque Converter* Drive

***and the Torque Converter is Twin Disc**

Since 1937, Twin Disc Clutch Company has specialized in Torque Converter Drive for powered industrial equipment. Crawler tractors represent one of the most successful applications.

By applying the crawler tractor's horsepower and torque through the cushioned drive of fluid, Torque Converter Drive permits peak utilization of horsepower and prevents engine lugging—provides smoother, easier, more flexible operation with minimum clutching and shifting—promotes faster work cycles and more production per day.

TWIN DISC
CLUTCHES AND HYDRAULIC DRIVES

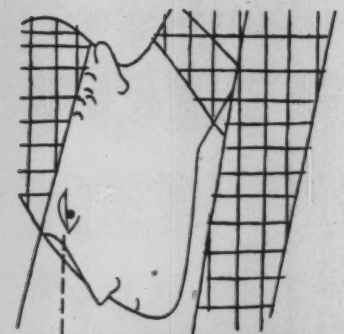
TWIN DISC
Torque Converters

Twin Disc Clutch Company, Racine, Wisconsin
Hydraulic Division, Rockford, Illinois

The new Allis-Chalmers HD-21 and HD-16 Crawler Tractors are designed and built to meet extremely high performance requirements — while maintaining the rigid Allis-Chalmers standard for longer life and the ability to operate at low cost.

Many outstanding features are being introduced by Allis-Chalmers on the HD-21 and HD-16, including • all-new A-C Diesel engines with "follow-through" combustion, for greater work with low loading of engine parts and extra long overall engine life • new Tru-Dimension track, featuring greater weight and maximum toughness • new "Wrap-around" radiator guard which tilts forward and down for easy accessibility • *Twin Disc Torque Converter Drive as standard equipment on the HD-21; optional equipment on the HD-16 . . . designed by Twin Disc and Allis-Chalmers engineers to meet exclusive requirements of the HD-21 and HD-16.*

Twin Disc Torque Converter Drive was also standard equipment on the HD-21's predecessors . . . for since 1940, it has been a feature on A-C Crawler Tractors.



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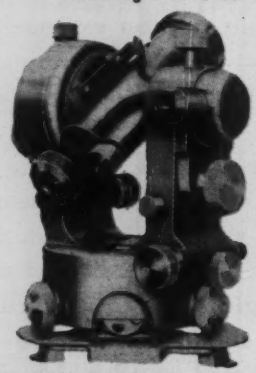

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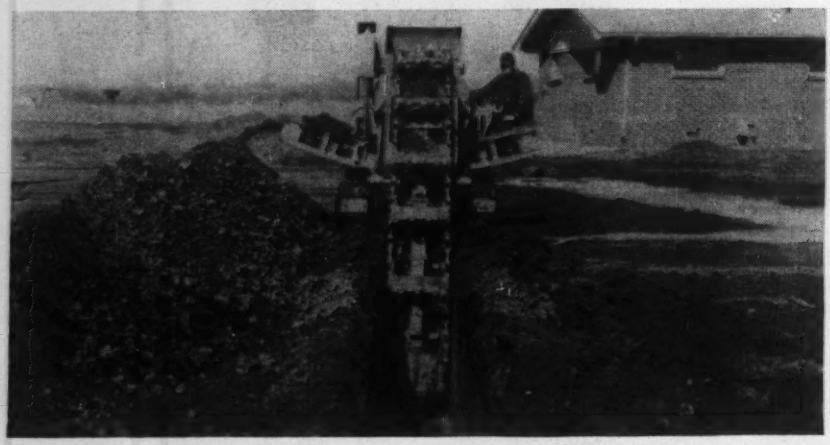
KERN INSTRUMENTS INC.
120 Grand St., White Plains, N.Y.



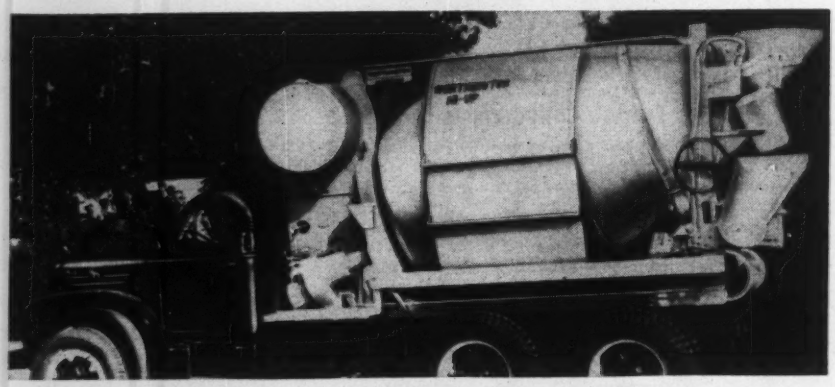
Trencher Designed for Compactness

A new ladder-type trencher has been developed with reduced overall dimensions and weight. Compact design, low center of gravity and low ground bearing pressure are additional characteristics of the unit which is designated as the Model 155 Trenchliner.

The 155 produces from 5.8 in. to 12.75 ft of trench per min in a range of 30 speed selections by lever control. A higher range of 30 speeds, up to 25 fpm, is made available by a sprocket change. With a maximum depth capacity of 8 ft and widths from 16 through 26 in., the Model 155 is suited for a wide work range including sewer, water, gas mains and services, as well as general utility and construction jobs.

Other features include: hydraulically actuated boom hoist that incorporates a positive down crowd; a power shiftable and reversible belt conveyor that discharges spoil to either side and at selective distances from the trench wall; friction type clutch for bucket line drive that serves as an automatic safety to protect machinery from shock loads; choice of 16, 20, or 24-in. buckets to which oversize adaptors can be fitted to increase trench widths by 2 or 4 inches; reversible bucket teeth; a choice of 12-in. flat or 16-in. grouser type tread. Either gasoline or diesel power is available. PARSONS CO., NEWTON, IOWA.

(*New Products continued on page 68*)



Worthington Adds a 7½-8 cu yd Mixer

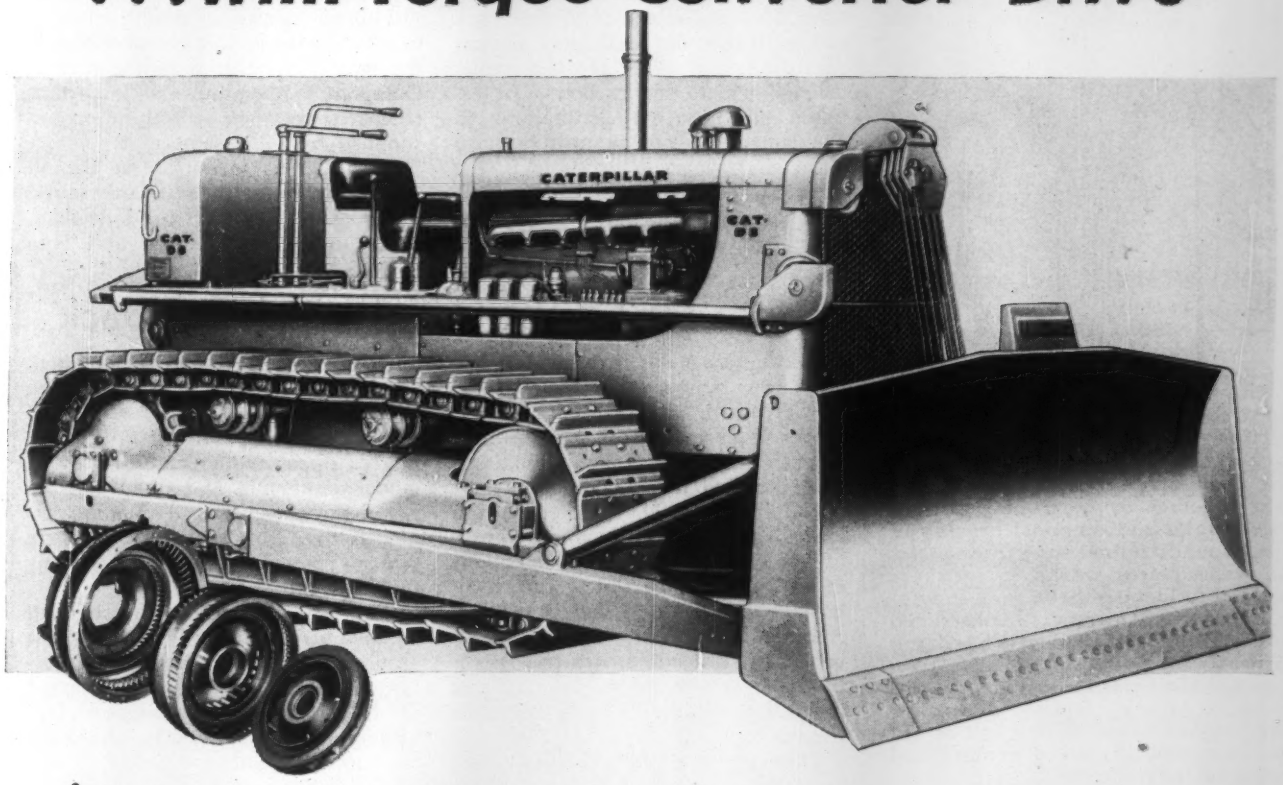
A new, standard 7½-8 yd. truck mixer features a heavy duty, single lever operated transmission; with forward and reverse clutches, and drum and brake gears totally enclosed in a continuous oil bath.

In addition, a new style distributing chute is incorporated which extends approximately 8 ft when open and over 11 ft with an extension. Height adjustment is simplified by the addition of a ratchet-type support.

The new mixer is furnished with either two-compartment water measuring tanks or flush tanks, calibrated to within 1% accuracy. Water injection is accomplished by use of a "grout-out," double seal water bell in the drum head, or by hopper water injection. Drum construction is of wear-resistant steel with $\frac{3}{16}$-in. thick welded shell and $\frac{5}{16}$-in. thick drum with die-formed ribs. Concrete Mach'y. Div., Worthington Corp., Plainfield, N. J.

2 NEW CAT DIESEL TRACTORS D8 and D9

. . . with Torque Converter* Drive



***and the Torque Converter is Twin Disc**

Since 1937, Twin Disc Clutch Company has specialized in Torque Converter Drive for powered industrial equipment. Crawler tractors represent one of the most successful applications.

By applying the crawler tractor's horsepower and torque through the cushioned drive of fluid, Torque Converter Drive permits peak utilization of horsepower —provides smoother, easier, more flexible operation with minimum clutching and shifting—promotes faster work cycles and more production per day.

TWIN DISC
CLUTCHES AND HYDRAULIC DRIVES

TWIN DISC
Torque Converters

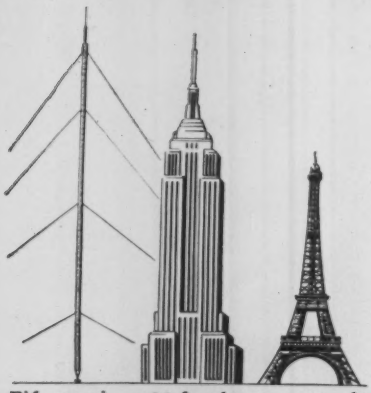
Twin Disc Clutch Company, Racine, Wisconsin
Hydraulic Division, Rockford, Illinois

The new Caterpillar D8 and D9 Diesel Tractors are built to deliver an even higher standard of money-making production, on *any* track-type application in *any* field.

Many advance-design features are engineered into these powerful Cat-built machines, including new Cat Diesel Engines with an all-new fuel injection system; new 7-roller track frames for maximum stability, flotation, and better ride; new "Water-quenched" track shoes for longer life than ever before; Hydraulic Booster Steering for maximum steering ease; new starting engines with more power; "In-seat" starting for greater convenience . . . *and Twin Disc Torque Converter Drive as optional equipment on both the Cat D8 and D9 Diesel Tractors . . . developed by Twin Disc and Caterpillar engineers to match the precise power characteristics of the new D8 and D9.*

WELDED DESIGN SPEEDS CONSTRUCTION OF WORLD'S TALLEST TOWER

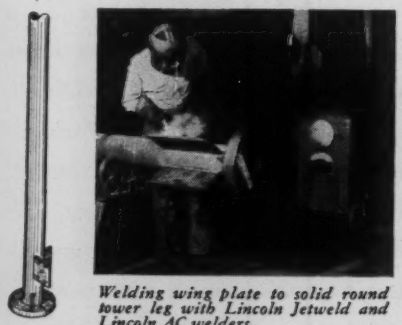
A COMBINATION of efficient structural design and high speed manual shop welding is responsible for low cost of construction on this 660 ton, 1572-foot television tower. Built for Station KWTV, Oklahoma City, it is believed to be the tallest man-made structure on the face of the earth.



Fifty sections 30 feet long are stacked up to form the complete tower. Each section is straight sided with 12 foot face and three vertical legs forming the triangular section. The legs are tied together by horizontal girts of steel angles and diagonal bracing of steel rounds bolted to drilled gusset or wing plates which in turn are welded to leg members.

All structural members are machined and welded in fast down hand position with Lincoln Jetweld, iron powder electrodes using Lincoln AC welders. After galvanizing and painting, they are shipped knocked down, field assembled on the ground and then erected in the air.

Designers and fabricators, Dresser-Ideco Company, Columbus, Ohio. Erection sub-contractors, Mizell Construction Company, Ganado, Texas.



Welding wing plate to solid round tower leg with Lincoln Jetweld and Lincoln AC welders.

BENEFITS FROM WELDED DESIGN are available in Lincoln Studies in Structural Arc Welding. Available by request. Write

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Dept. 2304 • Cleveland 17, Ohio
The World's Largest Manufacturer of Arc Welding Equipment

Air Diffuser Varies Temperature But Not Volume

Temperature and volume are controlled separately in a new dual duct high pressure air diffuser. While total air, once established, remains uniform under all operating conditions, temperature is varied by mixing hot and cold air quantities.

Both air inlets are fitted with dampers consisting of double perforated concentric sleeves and felt-edged pistons. The two outer sleeves slide back and forth over the fixed inner sleeves, governing the size of the holes through which the air flows. At extreme positions the perforations in one damper coincide, permitting maximum air passage, while those in the other damper are closed, blocking air passage. As both outer sleeves are moved simultaneously by the thermostate-actuated motor, the size of the holes in one damper increase in the same ratio as those in the other decrease, thus proportioning hot and cold air and controlling final temperature.

Adjusting the pistons changes the number of perforations accessible to air flow and hence determines total air delivery. As each piston is adjusted separately, hot and cold air supply may be closely regulated against different static pressures in each duct.

Though operating conditions may vary widely the mixing chamber blends the two air quantities to the desired discharge temperature—an important characteristic when several outlets are supplied from the same unit.

Sound levels measured on the 40 decible scale of a standard sound meter range from 32 to 45 decibles, depending upon the size and type

Loader for OC-12 Has 37-Deg Rollback

A loader unit—the model 12 WI—has been designed for the OC-12 crawler tractor.

It is a 1¼-yd unit that can dig to a depth of 30½ in. below ground and raise the load to a maximum height of 12 ft 8 in. The bucket on the loader has an unusual amount of rollback—37 degrees—that makes it easier to take big bites and carry heaping bucketfuls with less spilling. Another advantage of the extra rollback is that loads are carried closer to the tractor to reduce leverage and the ballast required to counterbalance the tractor.

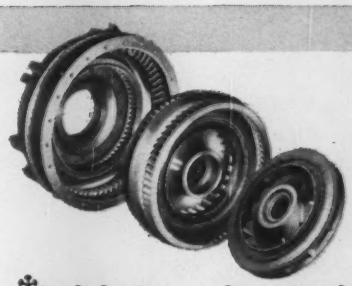
Discharge angle of 57 deg makes dumping of sticky material easier too. Maximum dumping height at the bucket hinge pin is 10 ft 4 in.

The tractor is available with gasoline or diesel engine with the diesel model developing 45.1 dbhp and the gas engine developing 44.3 dbhp rating. Both feature a wide torque span said to provide dependable lugging under all conditions.

The loader model has as standard equipment five track rollers and ripple grousers. The long track frame reportedly provides extra stability and balance for loader operation. THE OLIVER CORP., DEPT. 2 L, 400 WEST MADISON ST., CHICAGO 6, ILL.

INTERNATIONAL TD-24

with Torque Converter* Drive



For the largest earthmoving projects . . . for laying big pipe faster and surer . . . for attaining new highs in logging production . . . I-H has developed the new INTERNATIONAL TD-24 Torque Converter Crawler Tractor.

Among the many features offered in the new TD-24 are *finger-tip hydraulic control* with INTERNATIONAL'S famous Planet Power Steering; *instantaneous high-low range shift,* with all transmission shifting done by just *one* gear shift lever; the exclusive *"Decelerator"* feature, which gives the operator complete control of engine speed at all times; and *Twin Disc Torque Converter Drive* as *optional equipment . . . tailored by Twin Disc and International engineers to the TD-24's exact characteristics.* TWIN DISC CLUTCH COMPANY, Racine, Wisconsin; Hydraulic Division, Rockford, Illinois.

***and the Torque Converter is Twin Disc**

Since 1937, Twin Disc Clutch Company has specialized in Torque Converter Drive for powered industrial equipment. Crawler tractors represent one of the most successful applications.

By applying the crawler tractor's horsepower and torque through the cushioned drive of fluid, Torque Converter Drive permits peak utilization of horsepower and prevents engine lugging—provides smoother, easier, more flexible operation with minimum clutching and shifting—promotes faster work cycles and more production per day.

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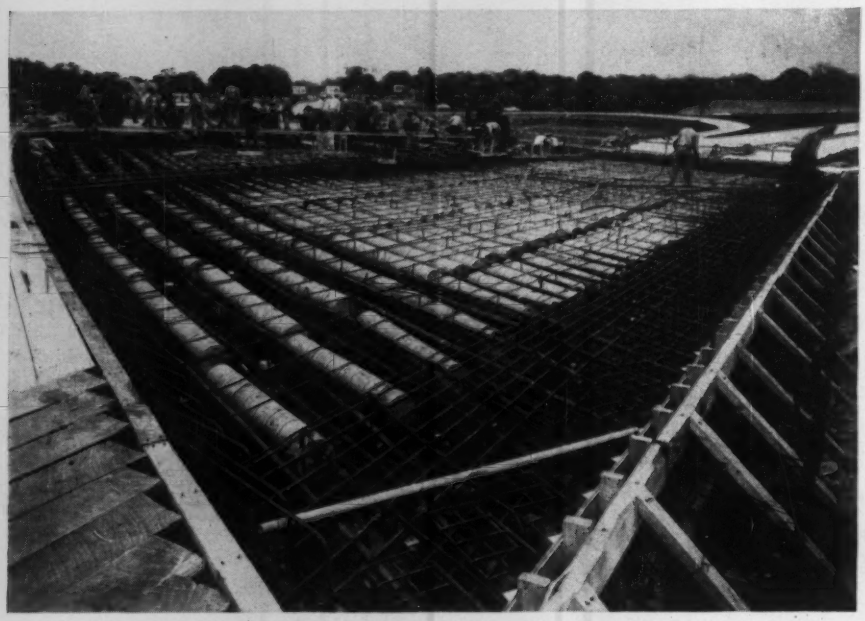
CLUTCHES AND HYDRAULIC DRIVES

TWIN DISC
Torque Converters

SONOVOID®

FIBRE TUBES

for voids in concrete construction



Waugh Memorial Bridge, Houston, Tex. Owned by City of Houston. Francis Niven, Engineer; Constructors, Inc., Contractors. Photo by Woodallen.

Money-saving prestressed bridge deck!

. . . low cost ***SONOVOIDS*** *make it possible*

The Waugh Memorial Bridge in Houston, shown above under construction, reportedly is the first prestressed continuous bridge in the U. S. and the first prestressed *voided* bridge in the U. S. The voids were formed by 8" O.D. SONOVOIDS

These low cost SONOVOID Fibre Tubes save concrete and reintorcing steel without impairing structural strength.

SONOVOIDS are specifically developed for use in concrete bridge deck, wall, floor and roof slabs . . . for precast units or units cast in place.

Supplied in specified lengths or sawed to your requirements on the job. Sizes from 2.25" to 36.9" O.D. up to 50' long. End closures available.

See our catalog in Sweet's

For complete technical data and prices, write

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Construction Products Division
LOS ANGELES, CAL. 5955 SOUTH WESTERN AVE. — AKRON, IND. — HARTSVILLE, S. C. — MAIN PLANT — BRANTFORD, ONT. — MONTCLAIR, N. J. 14 SOUTH PARK STREET

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unit selected for a particular pressure and air delivery.

The linkage is simple. Air volume is set by a rack and pinion. Mixing is obtained by 90 deg movement of a horizontal shaft, thus permitting the use of a standard damper operator controlled by a thermostat.

The diffuser, actually a combined valve and reducing chamber, is made in capacities up to 1000 cfm, operating at static pressures up to 6 in., water gage. CONNOR ENGINEERING CORP., DANBURY, CONN.

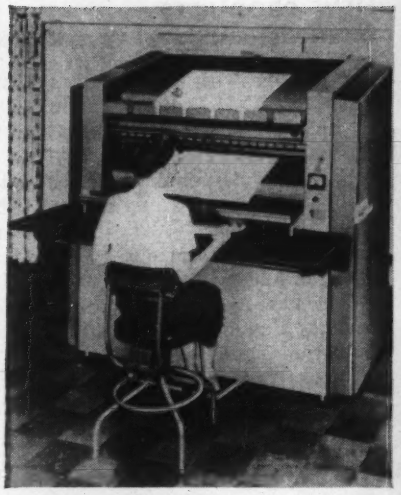
Copyflex Model 500 Offers Improved Print Stacking

The Copyflex Model 500 is a low-cost, high speed reproduction machine designed for heavy-volume use in the engineering, drafting and architectural fields.

The new machine is said to offer a 30% greater speed range, improved print stacking, and trouble-free drive control, which utilizes 100,000 selenium rectifiers in place of vacuum

Stapler for Cables, Tubing

A one-hand operated stapler can effect time and money savings in the installation of electric cable lines and copper tubing. The gun shoots a heavy staple with each squeeze of the trigger to fasten cables or tubes securely to many types of building materials. The stapler loads heavy wire staples in many leg lengths up to ¾ in., and its automatic chamber feeds them one at a time into a driving hammer. Staples are set around the wire or tube to a predetermined depth avoiding fracture to the material. The Heller Co., 2153 E. Superior Ave., Cleveland 14, Ohio.



tubes. It includes an extra large 24 in. by 42 in. front delivery tray with adjustable magnetic stops and a patented air-jet device for positive separation of originals from copies. A foot lever releases stock in the machine when realigning or removal is desired. An adjustable exposure lamp shield aids in processing extra-fast-printing originals.

Available as optional equipment are: a new type of adjustable, multiple-belt print delivery for positive front stacking of various size prints; a motor-driven rewinder for rolling up long prints in the rear; special guide rollers for stacking returned tracing and other originals in the front of the machine.

The new unit, equipped with a 4,000-watt quartz exposure lamp reproduces prints up to 46-in. wide by any length at a speed range from 14 in. to 40 ft per min.

The machine requires 200-230 volt, single phase ac. It measures 68¼ in. wide by 58 in. deep by 71½ in. high and sells for $3,250 fob, Chicago. Charles Bruning Company, Inc., Chicago.

New Maintainer Gets Torque Converter, Powered Moldboard

An improved Huber-Warco maintainer features a torque converter and powered sliding moldboard as standard equipment.

The torque converter is said to automatically balance the torque of the engine to meet the load demand of the maintainer while at the same time protecting the unit from shockloads and thereby increasing the life of the entire unit.

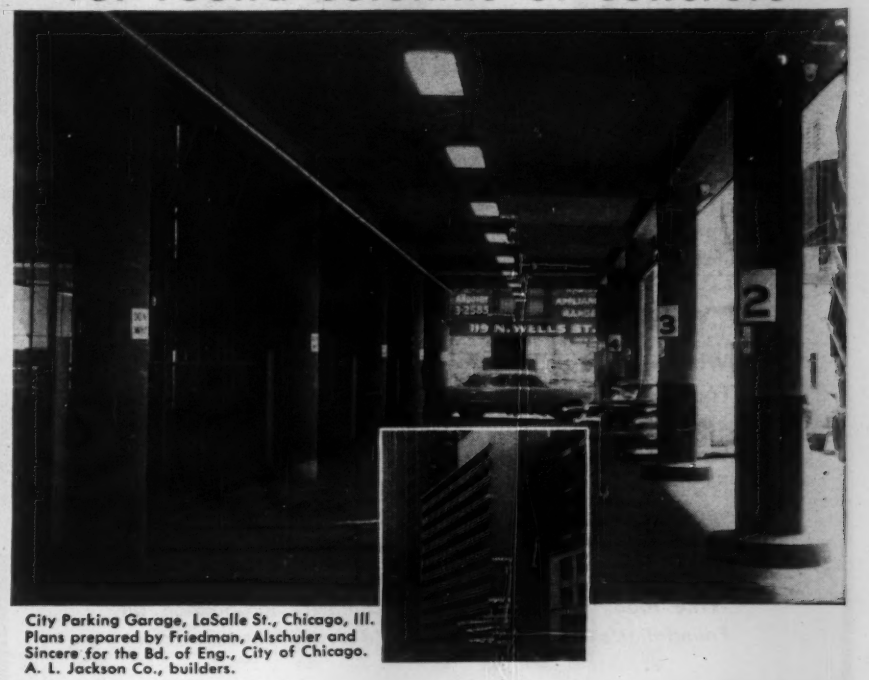
The powered sliding moldboard enables the operator to maintain a straight line of travel as the unit approaches culverts, abutments, or posts.

Either gasoline or diesel power is available—a Continental F-162 gaso-

SONOTUBE

FIBRE FORMS ®

for round columns of concrete



City Parking Garage, LaSalle St., Chicago, Ill. Plans prepared by Friedman, Alschuler and Sincere for the Bd. of Eng., City of Chicago. A. L. Jackson Co., builders.

Round columns save time and money!

. . . low cost ***SONOTUBES*** *make it possible*

Round concrete columns formed by low cost SONOTUBES helped save time and money in the construction of this parking garage.

SONOTUBE Fibre Forms are easy to handle because they are lightweight . . . quick to erect because they require minimum bracing . . . and economical to use because they are low in cost.

SONOTUBES are approved by architects and engineers and widely used by contractors everywhere. Available in 26 sizes, from 2" to 36" I. D. up to 50' long. Can be ordered in specified lengths or sawed to your requirements on the job.

Use Sonoco's patented "A-Coated" Sonotubes for finished columns; wax coated also available.

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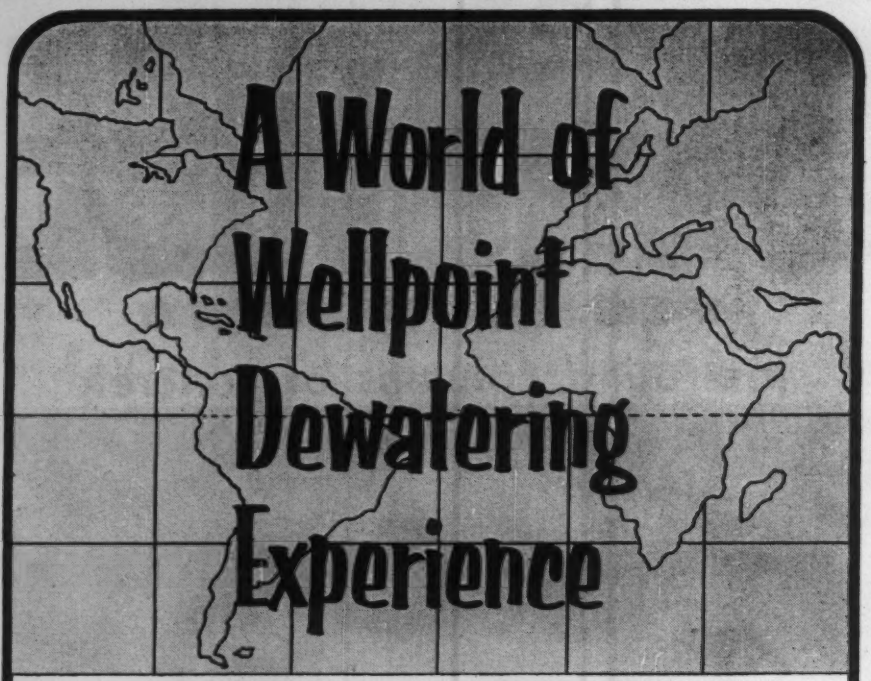

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CORPORATION OF BRIDGEWATER Deep Sewers in Boiling Silt Bridgewater, Somerset, England	**TURNER CONSTRUCTION COMPANY AND CAMPBELL BUILDING COMPANY, INC.** I.B.M. Project Kingston, New York
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line engine with 45 hp or a Continental GD-157 diesel engine with 40 hp. Five speeds range from 1.7 to 21 mph.

The new maintainer is both heavier and longer than its predecessor. The new unit weighs 7,200 lb with calcium chloride solution in the rear tires, and its wheelbase is 9 ft, 6 in.

The new machine has a number of features designed to increase ease of operation and working efficiency. Automotive-type hand steering reportedly requires one-third as much effort, the gear shift is now located on the steering column and the clutch is foot-operated. A hydraulically cushioned seat provides increased comfort for the operator.

The hydraulic system has been redesigned and improved. A new six-unit control valve which is standard equipment has been located for greater operator convenience, and the hydraulic pump is now gear driven from the engine. Hydraulic system capacity is increased to 10 gal.

A new pressure-type cooling system features a built-in engine by-pass for quick warm-ups. Other features include higher front axle clearance for straddling larger windrows; heavy-plate, one-piece, all-welded construction of the frame; and increased accessibility of all assemblies.

Standard equipment includes 6.50:16 tires on the front and 11.00:38 tires on the rear, hand controlled parking brakes, battery, 45 amp generator and horn. Hydraulic brakes are also standard.

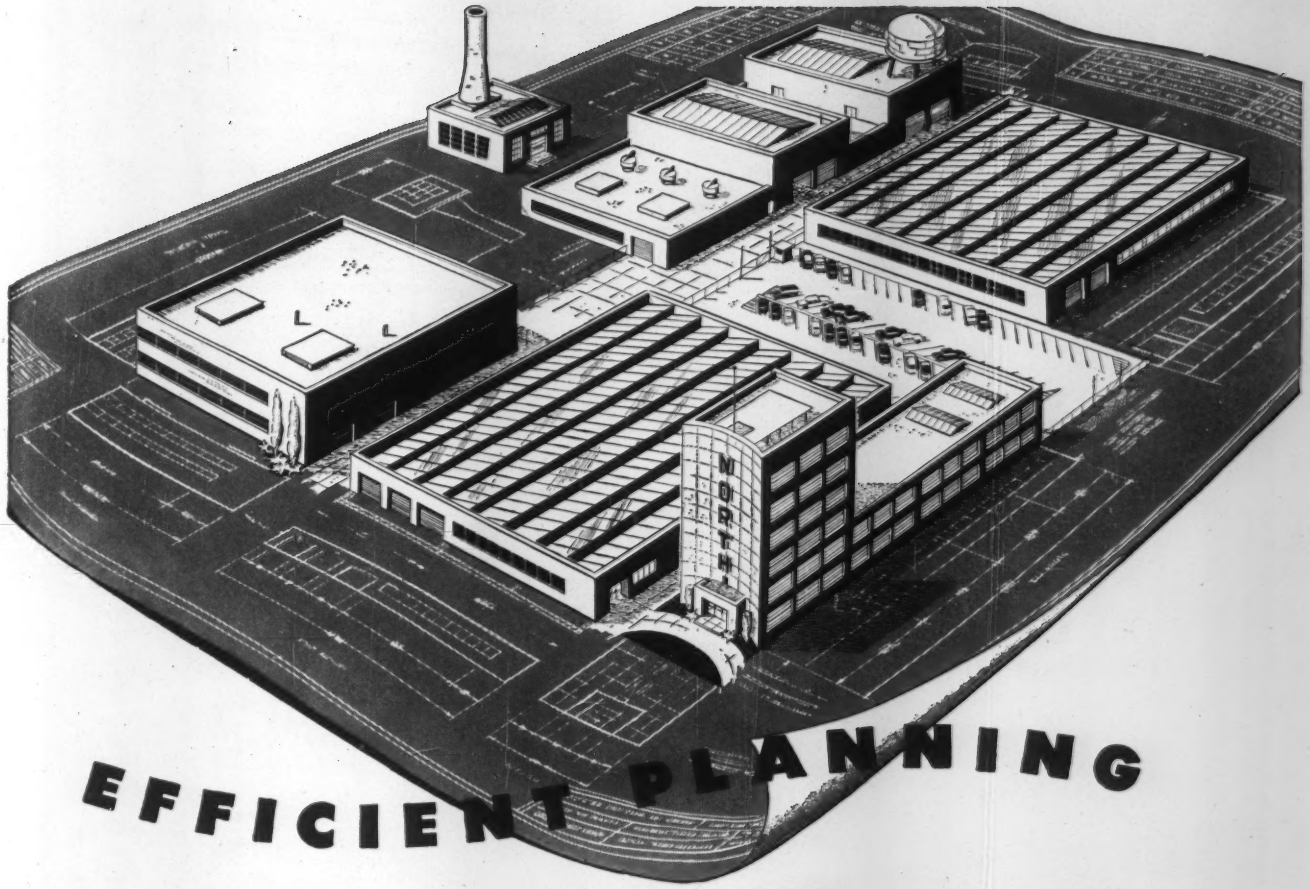
Among improvements made on attachments and accessories, the cab has been redesigned to permit the top half to be removed in warm weather. HUBER-WARCO CO., MARION, OHIO.

Level Uses Bored Plastic Discs to Eliminate Breakage

The Gyro-Core level is said to plumb or level in any plane. The fluid cavity, rather than being the conventional banana-shape, is a barrel. Fine wire bubble markers are embedded inside the plastic core and extend around the barrel.

In making the level, a plastic disc is bored out to form the fluid cavity. There are actually no vials—just three internally bored plastic discs. Therefore, there is no problem of vial leakage or breakage.

The three discs are mounted in a 48 x 2½ x 1⅝-in. straight-grained mahogany stick with full angle-corner brass binding. GOLDBLATT TOOL CO., DEPT. Y-22, 1960 WALNUT ST., KANSAS CITY 8, MO.



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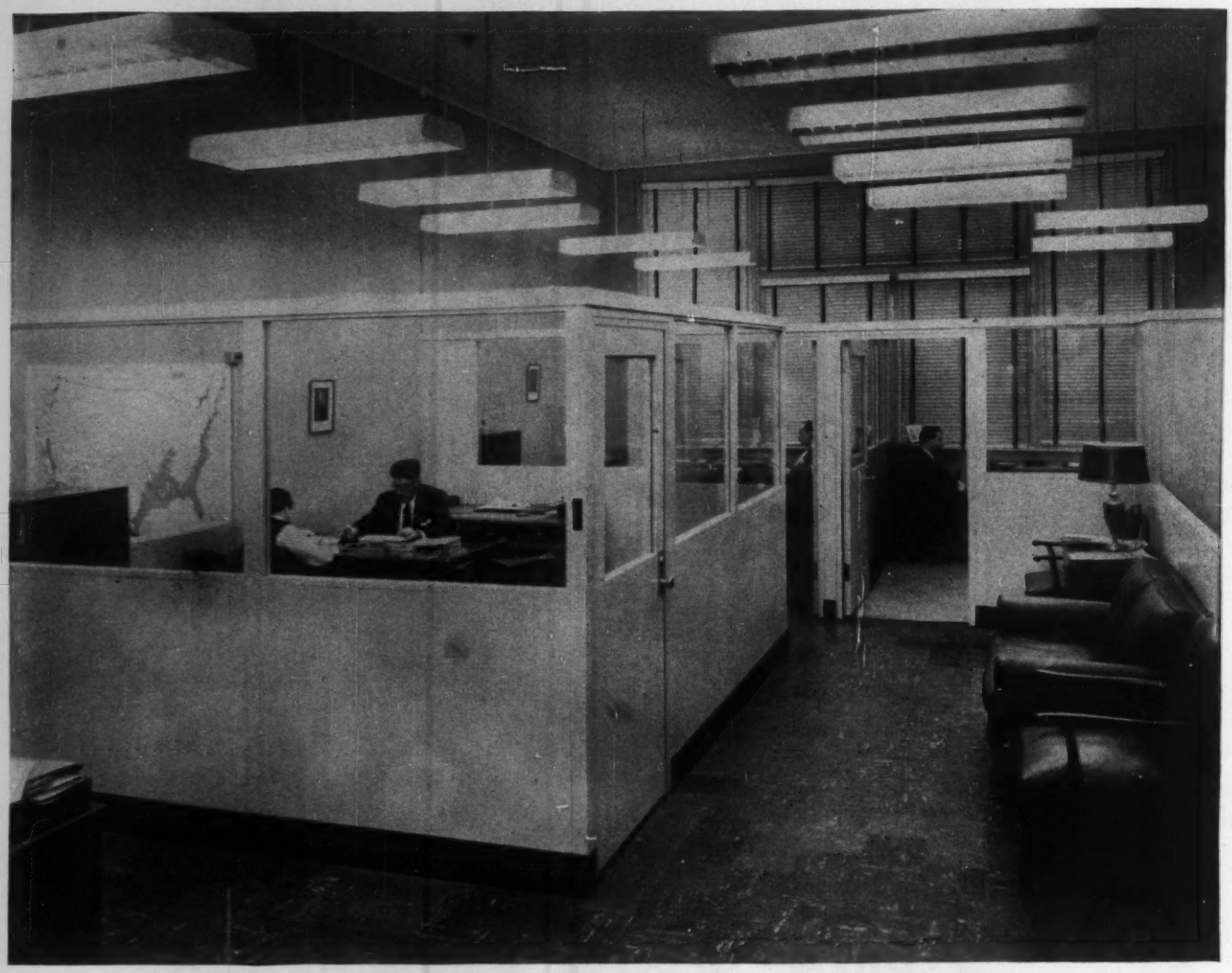

Installation: VMP MOBILWALLS for the Philadelphia Life Insurance Company at 111 N. Broad Street, Philadelphia, Pa.
Contractor: Fleming Company, 1717 Sansom Street, Philadelphia 3, Pa.

"VMP MOBILWALLS helped me meet a tight construction schedule"

Prompt delivery counts. This compliment from Charles J. Fleming, President of the Fleming Company, Philadelphia building construction firm, expresses the satisfaction that contractors feel when they deal with VMP. They can depend on fast deliveries. VMP MOBILWALLS always fit. No time is lost in erection with local VMP crews on the job.

VMP's metal movable MOBILWALLS slash installation time, keep that new look for years. Contractors everywhere are getting the word about the businesslike spirit behind VMP's erection and service crews. And warehouses have big stocks of metal MOBILWALLS available for immediate delivery.

Also, VMP works closely with the contractor . . . bidding with good sharp prices . . . giving expert attention to new and remodeling projects. Get the facts about VMP; write Dept. ENR-6 for VMP MOBILWALL catalog showing the variety of partitions available.

Virginia Metal Products, inc.

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Subsidiary of Chesapeake Industries, Inc.

MEN AND JOBS

T. C. Williams

Stone & Webster Elects T. C. Williams President

Stone & Webster Engineering Corp. has elected T. Cortland Williams as president, succeeding Russell T. Branch, who was named chairman of the board.

An engineering graduate of Bucknell University, Williams has been associated with Stone & Webster since 1923. He was appointed construction manager in 1942 and was elected executive vice president in 1953.

As president, with headquarters in New York City, Williams will be responsible for the company's worldwide engineering and construction activities. He is currently serving as president of the National Constructors Association (ENR, Feb. 17, P. 182).

The new board chairman, elected president in 1945, has been with Stone & Webster continuously since his graduation from Stevens Institute of Technology in 1912.

Transportation Specialist Appointed to Commerce Post

Thomas Bayne Wilson of Williamstown, Kans., became Deputy Under Secretary of Commerce for Transportation last month. He was formerly with the General Services Administration, where he filled the position of Deputy Commissioner for the Emergency Procurement Service.

With extensive experience in aviation, shipping, railroading and motor transportation, Wilson served on General MacArthur's staff during World War II as chief of transportation for the Southwest Pacific area. He was later promoted to brigadier general and assigned as commanding general, transportation, to the China-Burma-India theater, where his duties included operating plans for the Burma Road.

Wilson's career in private industry has included service as an officer and director of such companies as Pacific Greyhound Corp., Alaska Steamship Co., and All American Bus Lines. He has been in government service since 1947, when he resigned as chairman of the board of Transcontinental & Western Air, Inc., Kansas City, Mo.

Gift of Bridge Designer Helps Student Engineers

Through the generosity of one of the nation's foremost bridge designers, Newark College of Engineering, Newark, N. J., has received a $10,000 grant from the David B. Steinman Foundation. The fund will be used to make loans for tuition and other expenses of the students.

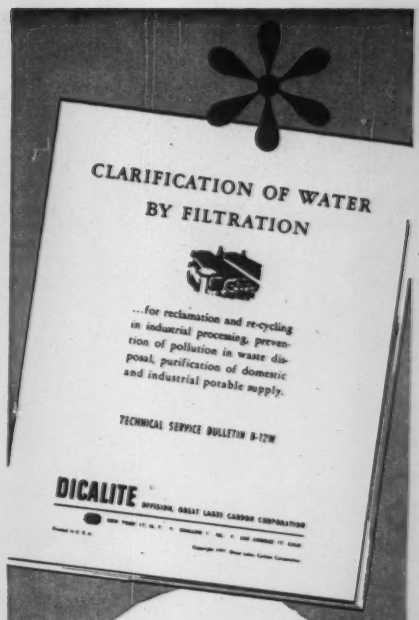
The foundation was established earlier this year by David B. Steinman, New York consulting engineer. Its purpose is to help deserving engineering students—through scholarships, awards and loans—to complete their undergraduate studies or to undertake graduate work in engineering. According to Steinman, the program was inspired by his own lifelong gratitude for financial assistance he received during his student days at City College of New York and Columbia University.

Under the terms of the Newark grant, known as the David B. Steinman Fund, loans will represent a "debt of honor" to be repaid voluntarily—promissory notes will not be required. As the loans are repaid, the grant will become a revolving fund for the benefit of students in future years.

A former professor of civil engineering and author of numerous books and articles on bridge construction, Steinman has been honored around the world by many colleges, universities, professional societies and nations for his achievements in the field of bridge design on five continents.

Among his famous works are the Florianopolis suspension bridge in Brazil, the largest bridge in South America; the Thousand Island Bridge,

(*Continued on page 78*)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BY FILTRATION
...for reclamation and re-cycling in industrial processing, prevention of pollution in waste disposal, purification of domestic and industrial potable supply.
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This FREE Bulletin gives valuable data on water filtration...

Many problems in the reclamation or recycling of water in industrial processing, in the prevention of pollution in waste disposal and in the purification of potable supply are answered in DICALITE'S BULLETIN B-12-W—"Clarification of Water by Filtration."

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ENGINEERING
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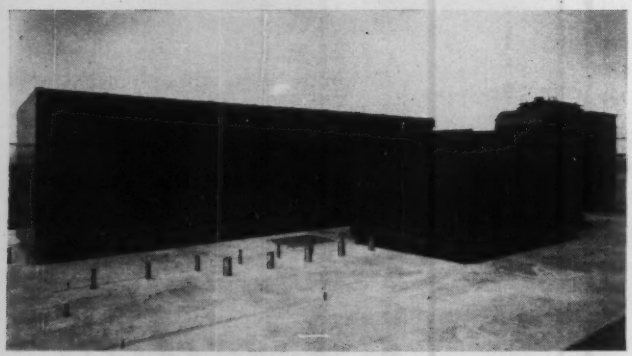
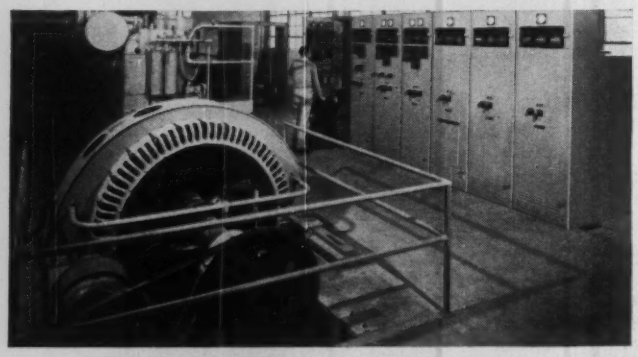
MORE NON-GLARE LIGHT per watt is provided for the airport's 4500-car parking lot and its approaches by 232 G-E luminaires.

G-E power system permits easy future

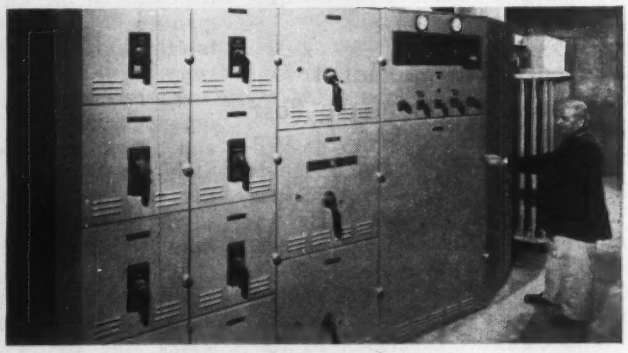


EASILY ACCESSIBLE, yet fully sheltered, this outdoor installation of the main 12-kv switchgear and one master unit substation is readily expandable. Note conduit placed for future units.

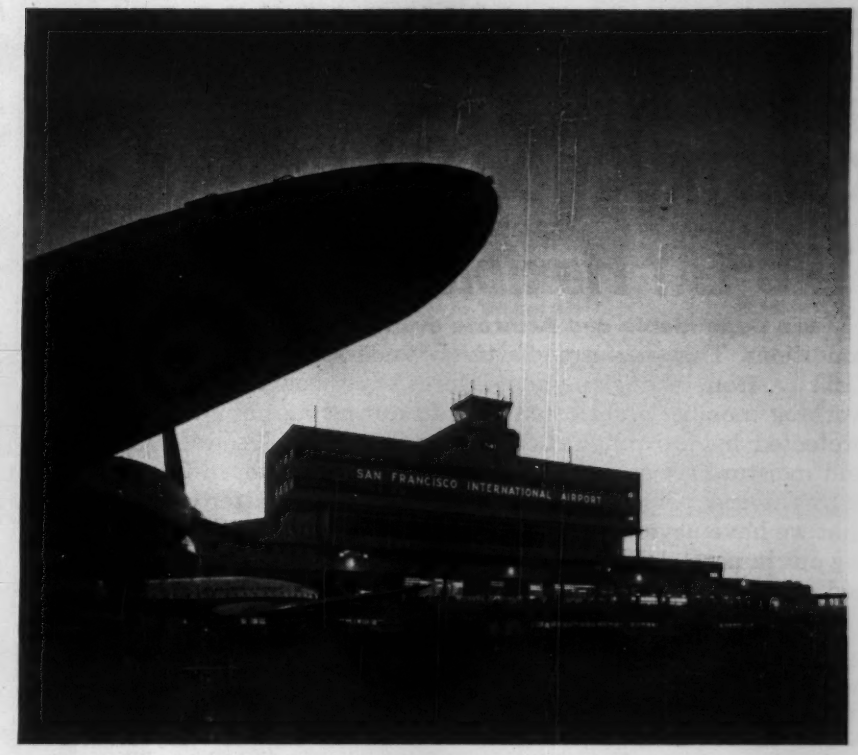
MORE EFFICIENT higher-voltage distribution of power is provided close to load by G-E indoor master unit substation (left) and integral distribution center substations (right).



EXTRA POWER RELIABILITY for airport is provided by standby, diesel-driven, G-E generator. Metal-clad switchgear, right, dependably protects vital radar, runway and approach lights.



GREATEST FLEXIBILITY of distribution and convenience of operation is achieved with G-E load center unit substations. Above is one of two substations furnishing power for terminal.



EASY EXPANSION FEATURES were planned to anticipate 5000-kva load by 1960.

expansion at new San Francisco airport

"Building-block" flexibility provides for adding capacity as needed, keeps present system costs low

San Francisco's great new International Airport handles more than two and a half million passengers each year, could handle twice that number now with no strain—and can expand at minimum cost to ten million capacity whenever necessary. A major factor in the airport's ability to expand is the highly flexible, efficient electrical system serving it.

Electrically, the airport is a model of modern system design and farsighted planning. General Electric engineers worked with San Francisco Public Utilities engineers in designing the electrical system for the airport itself, and with Clyde E. Bentley, consulting engineer with associates, on the system for the terminal building. The building was designed by W. P. Day, San Francisco, architect and structural engineer for the project. G-E 1500-kva master unit substations were used as key "building blocks." Initial system investment was kept low, yet future demands planned for, by this provision for adding small blocks of power capacity only as more power is needed.

Years of engineering experience and skill were made available by G.E. to the customer, consulting engineers, architect, and electrical contractor Abbett Electric Corporation of San Francisco. When planning installed equipment or electrification of tools for heavy construction projects remember G-E equipment is backed by G-E engineering help in application, installation and service. This help is available to you through any G-E Apparatus Sales Office, or by writing General Electric Co., Section 664-35, Schenectady, N. Y.

Engineered Electrical Systems for Heavy Construction

GENERAL ELECTRIC

FOR REMOTE CONTROL JOBS on a great variety of CONSTRUCTION EQUIPMENT

TRU-LAY *Flexible* PUSH-PULLS

are Dependable and Accurate even under the most adverse conditions. They perform effectively under extremes of Heat or Cold . . . from jet engine temperatures to 70° below F. The inner, working member (lubricated for life during assembly) is fully protected by the tough, flexible conduit. Abrasive dusts, dirt and moisture are sealed out. Fittings are cold swaged to make them integral parts of the control unit. It is a matter of record that we have never heard of a TRU-LAY *flexible* PUSH-PULL wearing out in normal service. Use of these versatile, simple and rugged controls means the virtual Elimination of Maintenance.

Widely Used on Construction Equipment

Adaptability to all sorts of mechanical situations explains, in large measure, the wide-spread use of TRU-LAY PUSH-PULLS on Tractors and their accessories, Power Shovels, Winches, Road Graders, Road Oilers, Dump Trucks, Snow Plows, Engine-driven Pumps, Rock Crushers, etc.

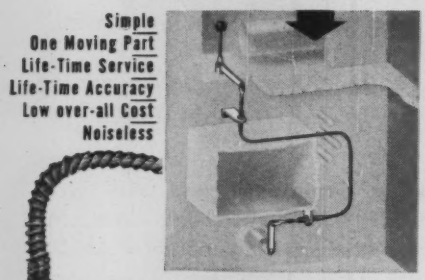
On Construction Equipment these dependable Push-Pulls are used for the remote control of Hydraulic and Air Valves, Brakes, Clutches, Transmissions, Throttles, Chokes, Governors, Power Take-Offs, and on many other applications.

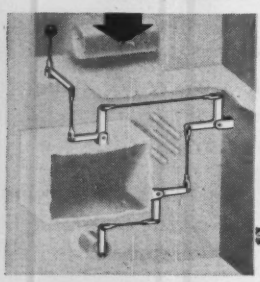
TRU-LAY PUSH-PULLS are precision products, not gadgets. They provide positive remote-action whether anchorages are fixed or movable . . . for light loads or loads up to 1,000 lbs. . . . and they are effective over short or long distances, up to 150 feet or more.

Advantages of TRU-LAY PUSH-PULL flexibility and simplicity are pictured below:

TRU-LAY PUSH-PULL — Simple · One Moving Part · Life-Time Service · Life-Time Accuracy · Low over-all Cost · Noiseless

MECHANICAL LINKAGES — Complex · Many Parts · Many Points of Wear · Increasing Back-Lash · Loss of Accuracy · Vibration · Rattles





"Solid as a rod but *Flexible* as a wire rope" is a good description of TRU-LAY PUSH-PULL REMOTE CONTROLS. This flexibility makes it possible to snake around obstructions as shown in the picture at the left . . . permits the ideal arrangement of all control elements . . . greatly simplifies installation of controls by reducing the number of working parts . . . damps out noise and vibration. Versatile, Accurate, Adaptable, Rugged . . . they are the ideal remote controls for Construction Equipment.

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joining the U. S. and Canada; the Henry Hudson Bridge in New York City; the Kingston-Rhinecliff Bridge across the Hudson River; and the Mackinac Bridge in Michigan.

Eight Engineers Honored At College Centennial

At its centennial celebration held in East Lansing last month, Michigan State College honored eight of its engineering alumni for their outstanding achievements. Special centennial awards were presented to:

- Christian F. Beukema, president, Michigan Limestone Division of U. S. Steel Corp., Detroit.
- T. Frederick Burris, chief engineer, Chesapeake & Ohio Railway, Birmingham, Mich.
- Maurice J. Day, director of research and development, Crucible Steel Co. of America, Pittsburgh.
- James Harold Foote, chief engineer and president of Commonwealth Associates, Inc., Jackson, Mich.
- Raymond F. Giffels, secretary-treasurer, Giffels and Vallet, Inc., Detroit.
- Stanley B. Hunt, chief engineer of Buffalo District, Corps of Engineers, (St. Lawrence Seaway Project).
- Verne L. Ketchum, chief engineer, Timber Structures, Inc., Portland, Ore.
- Arthur Vinson, vice president of manufacturing, General Electric Co., N. Y.

Those who received the awards were cited "for outstanding contributions to society, for achieving distinction in their endeavors, and for setting highest standards of accomplishment."

Wason Medal Is Awarded To Materials Engineer

Rudolph C. Valore, Jr., a materials engineer with the National Bureau of Standards, has received the Wason Medal of the American Concrete Institute for the most meritorious paper in ACI "Proceedings" in 1954.

Entitled "Cellular Concretes", Valore's paper reviewed methods of preparation and physical properties of moist-cured and high-pressure steam-cured cellular concretes, ranging in density from 10 to 100 lb per cu ft, as evolved in Europe in 30 years.

Valore is attached to the structural engineering section of the Building Technology Division of the bureau. The research in which he is engaged includes volume changes of concrete during freezing and thawing, methods

split-second fastenings to steel or concrete with

Creary Drive-It Pins

PATENTED SELF-CENTERING PINS

Patented ribbed guide sleeve holds Creary Pins in center of barrel for true, accurate fastening.

HEADED PINS

For permanent anchorage in concrete or steel.

50 TYPES OF PINS

There are over 50 Drive pins to do your particular job. For applications where standard pins are not suited, special pins will be custom made.

UNDERWRITER APPROVED

Creary pins have passed all the rigid requirements of strength and pullout tests and are approved by the Underwriters' Laboratory.

THREADED PINS

Available threaded internally or externally for easy fastening and removal, when necessary, of anchored object.

EYE PINS

Use where required to suspend ductwork, ceilings and pipes.

Creary Drive-it pins give you greater penetration, greater holding power and greater operating speed. They are made of high quality alloy steel and are specially heat treated to give greatest strength and toughness. It is only because of this super strength and extreme hardness that they are able to perform the seemingly impossible . . . to penetrate up to 1" of steel for example.

Drive-it and pins have been used by leaders in the field since 1946, when the "Drive-it" revolutionized the construction industry. Today Creary pins and "Drive-its" are speeding up construction and reducing on-the-job costs throughout the world.

Be safe, be sure—use Creary Drive Pins.

Send coupon below for sample of pin and name of nearest dealer.

Creary DRIVE-IT Pins

LOOK FOR THE "C"
THE CREARY TRADEMARK

SEND FOR *FREE SAMPLE*
CREARY DRIVE PIN

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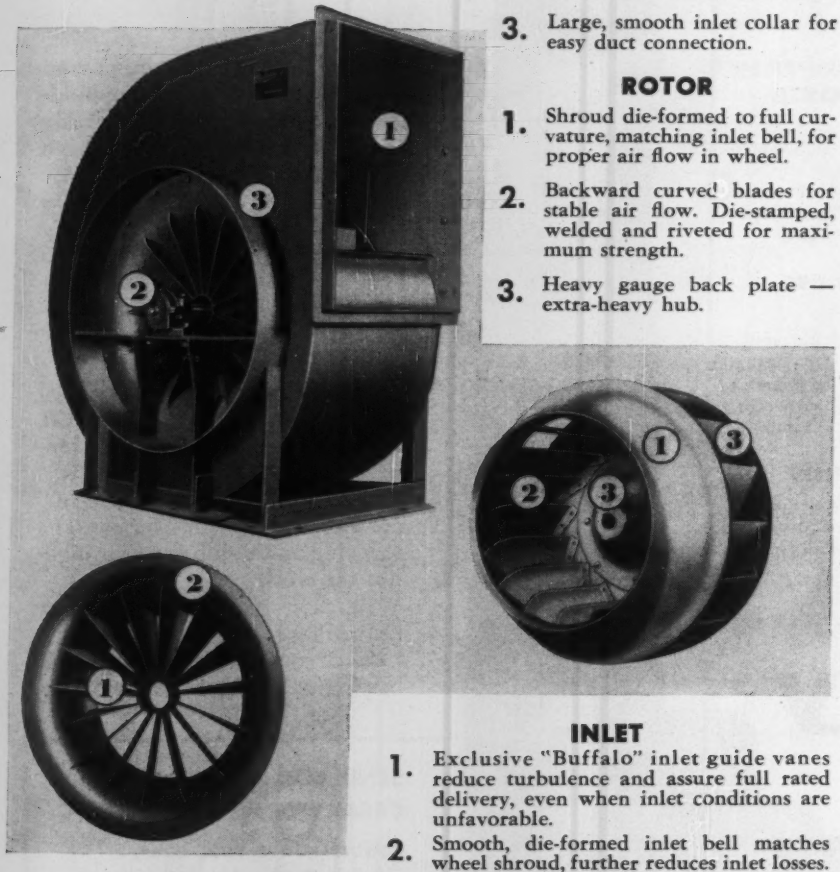
HERE'S THE BUILT-IN QUALITY YOU GET IN THIS "Buffalo" FAN

In October of 1953, when we introduced the "Buffalo" Type BL Limit-Load Ventilating Fan, we knew it offered the finest features for quiet, stable, efficient performance in industrial service. Since that time, it has more than measured up to highest expectations.

A study of the "Q" Factor* features illustrated here will show you *why* this fan will give you your money's worth, and more, in *performance*. Further details in Bulletin F-102, your copy upon request.



ENTIRE FAN

1. Housing proportioned and streamlined for peak efficiency.
2. Self-aligning bearings; choice of sleeve or anti-friction type.
3. Large, smooth inlet collar for easy duct connection.

ROTOR

1. Shroud die-formed to full curvature, matching inlet bell, for proper air flow in wheel.
2. Backward curved blades for stable air flow. Die-stamped, welded and riveted for maximum strength.
3. Heavy gauge back plate — extra-heavy hub.

INLET

1. Exclusive "Buffalo" inlet guide vanes reduce turbulence and assure full rated delivery, even when inlet conditions are unfavorable.
2. Smooth, die-formed inlet bell matches wheel shroud, further reduces inlet losses.

**The "Q" Factor — the Built-in Quality which provides trouble-free satisfaction and long life.*

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of measuring dimensional changes of concrete, dynamic tests of building materials, and investigations of lightweight aggregate and cellular lightweight concretes. Author of several technical publications, Valore is active in the work of the American Society for Testing Materials, the American Concrete Institute, and the Highway Research Board.

Louisiana Builder Heads National Housing Center

W. Hamilton Crawford, Baton Rouge, La., builder and developer, has been elected chairman of the board of directors of the National Housing Center, wholly owned subsidiary of the National Association of Home Builders. He succeeds Nathan Manilow of Chicago.

As board chairman, Crawford has active direction of the management of the center, soon to be housed in its new $2.5-million Washington, D. C., building that is nearing completion. A major function of the center will be to provide service facilities to home buyers, members of the building industry and those in related fields.

The center's new building also will be the headquarters of NAHB and will contain a permanent exhibit of manufacturers' products.

Contractors on West Coast Honor Los Angeles Builder

The Building Contractors Association of California has named Vern R. Huck, Los Angeles contractor, as "Builder of the Year". The award for outstanding achievements, both inside and outside of the construction industry, was presented at the Los Angeles Home Show.

Active in Los Angeles charitable work, Huck entered the construction business with his father at the age of 14 and has engaged in an extensive career of residential and commercial building up and down the Pacific coast.

Men and Jobs Briefs . . .

• **Associations**—The New York State Society of Professional Engineers installs **Herbert F. Roermele**, dean of students at New York's Cooper Union, as president . . . **W. U. Garstka** becomes chairman of the hydraulic division and **A. D. Soderberg** chairman of the irrigation and drainage division of the Colorado section of ASCE . . . **Martin W. Watson**, Topeka, Kans., is reappointed chairman of the construc-

STOP costly infiltration...

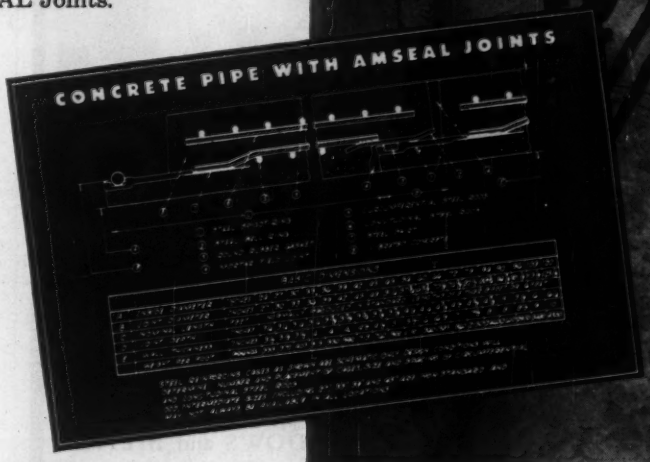
specify

AMSEAL JOINTS

Contractors appreciate the simplicity and economy of installing precast concrete pipe furnished with foolproof AMSEAL Joints—particularly where trench conditions are wet and troublesome. The continuous, round rubber gasket assures a watertight seal against infiltration or leakage. AMSEAL Joints provide the necessary flexibility to permit normal expansion, contraction, deflection and settlement without reducing their effectiveness.

The efficiency and long life of AMSEAL Joints results in *greater economy*—through savings in the construction, operation and maintenance of sewage pumping and treatment facilities. With pipe lengths of 16 feet, there is less joining—less time on the job. Inside surfaces are smooth for maximum capacity.

Write today for specifications on precast concrete pipe with trouble-free AMSEAL Joints.



This "pressure proven joint" is furnished on low pressure concrete pipe for:

- INVERTED SIPHONS
- WATER INTAKE LINES
- INTERCEPTING SEWERS
- OUTFALL SEWER LINES
- SEWAGE FORCE MAINS
- LOW PRESSURE WATER SUPPLY LINES

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AMERICAN-MARIETTA BUILDING, 101 EAST ONTARIO STREET, CHICAGO 11, ILLINOIS PHONE: WHITEHALL 4-5600

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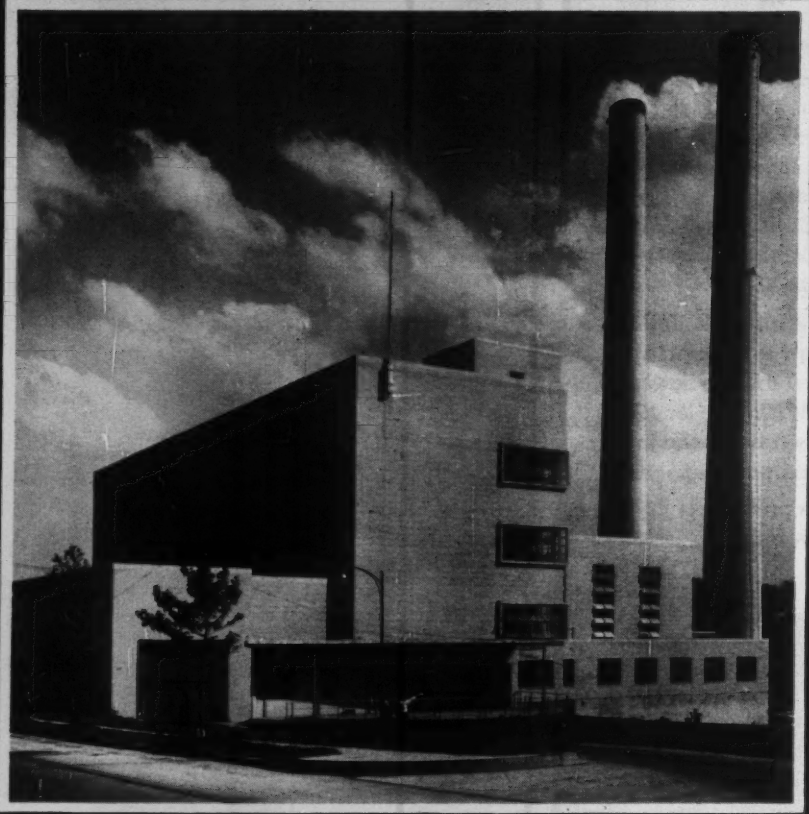
STEEL WINDOWS HAVE THE STRENGTH AND RIGIDITY THAT NO OTHER WINDOW CAN MATCH

HOT-DIP GALVANIZED WINDOWS WITH *BILTIN* SUBFRAMES



Betts Ave. Destructor Plant, New York City
Architect: The City of New York Dept. of Public Works, Division of Engineering and Architecture
Contractor: Grove, Shepherd, Wilson & Kruge, Inc.

This building of the Sanitation Department of New York City is a good example of fine design among commercial and industrial buildings.

HOPE'S HOT-DIP GALVANIZED WINDOWS and BILTIN SUBFRAMES are ideally suited for this application. Their flexibility of size and arrangement adapts them for use with all types of architecture. They provide any required amount of ventilation and daylight. They have unmatched strength and rigidity, require little maintenance.

Investigate Hope's Hot-Dip Galvanized Windows. Write:

HOPE'S WINDOWS, INC., *Jamestown, N. Y.*

The Finest Buildings throughout the World are Fitted with Hope's Windows

tion and civic development committee of the U. S. Chamber of Commerce . . . **Raymond Foulkrod,** chief engineer of Michigan Bell Telephone, is elected president of The Engineering Society of Detroit.

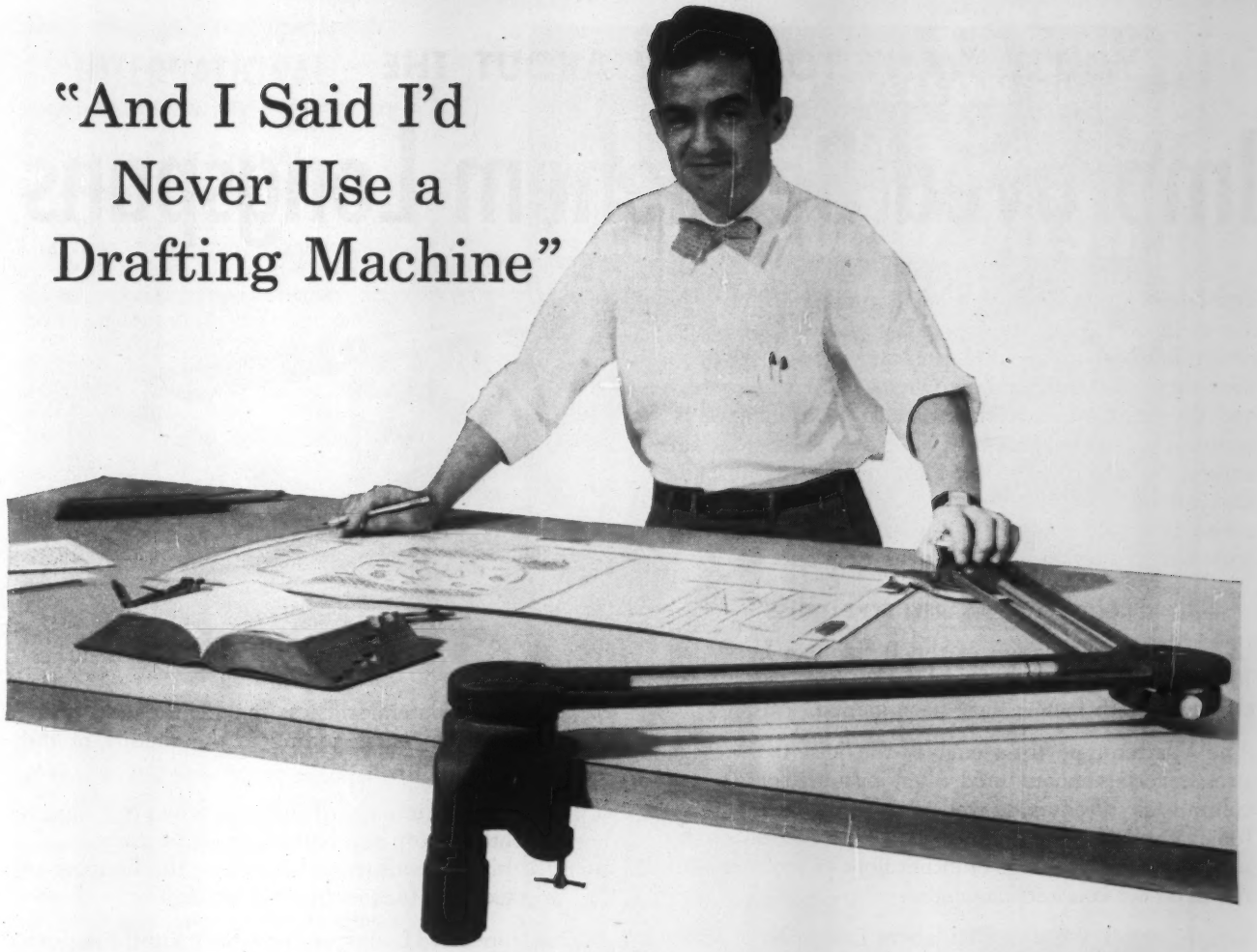
• **Careers**—The Virginia State Highway Department names **Francis A. Davis,** department purchasing agent, as deputy commissioner and chief engineer, succeeding **Burton Marye, Jr.,** who leaves June 30 to become general manager of the Richmond-Petersburg Toll Road Authority . . . **Merritt A. Neale,** design engineer with George S. Richardson, Pittsburgh consulting engineer, is appointed assistant director of the Pittsburgh Public Parking Authority . . . **William L. Hall,** now with the Bureau of Public Roads in Oregon, will head up the new road study committee created by the Montana legislature.

• **Business**—Brown & Root, Inc., Houston, Tex., appointed **M. P. Anderson** a vice president—he's been the company's chief engineer since 1946 with overall responsibility for its design and engineering activities . . . **Herman H. Rappaport** is named manager of the newly-created Construction for Manufacturing Division of McDonald Bros., engineering and construction firm of Los Angeles . . . **Michael A. Spronck,** formerly executive field editor of "Construction Equipment," joins the staff of D. B. Steinman, New York engineer.

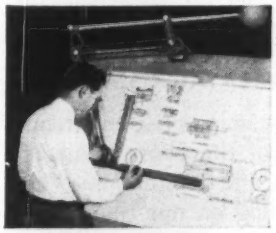
• **Honors**—The Air Pollution Control Association presents its first Frank A. Chambers Award for "outstanding achievement in the control of air pollution" to **Moyer D. Thomas,** of Stanford Research Institute, principally for his development of the Thomas Autometer, a recording instrument for analysis and measurement of sulfur dioxide in the air . . . **H. D. Palmore,** Frankfurt, Ky., consulting engineer, receives an honorary degree from the University of Kentucky.

• **Retirements**—On August 12, **William J. Fox** will retire as Los Angeles county engineer, after 29 years of county service—he expects to become a consulting civil engineer, specializing in zoning, city planning and aviation, in Newport Beach, Calif. . . . **Charles W. Waters** retires July 1 as Buffalo district engineer and plans to remain active in the highway engineering and transportation field—he was the 1954 recipient of the Roy W. Crum Award of the Highway Research Board.

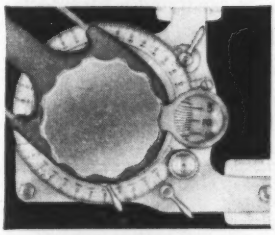
"And I Said I'd Never Use a Drafting Machine"



"That Was Before I Tried a Bruning Equipoise Drafter!"



Bruning Counterbalanced Drafters and Bruning Track Drafters provide fast, easy, accurate drafting on vertical boards and on extra-large drawings.



Bruning Equipoise Drafters are available with either the Civil Engineer protractor head, shown here, with its special azimuth scale, or the Standard protractor head.

Take a tip from an increasing number of draftsmen who, perhaps like yourself, were reluctant to try any drafting machine or had been disappointed in a conventional type drafter. These men now report: Bruning Equipoise Drafters cut drafting time over conventional equipment up to 40% on most jobs, up to 50% on some structural drawings — beat any other drafting machine they ever tried.

But prove it to yourself! See how fast you'll work with one precision instrument combining T-square, straightedge, triangle, protractor, and scales. Feel how the patented Equipoise mechanism eliminates any drift from gravity, literally makes the drafter "float" into place. Find how easy it is to rotate, turn, and lift this drafter — all with the left hand. At the same time, operate the Touch Control button with your left thumb to set the drafter automatically at any of 24 commonly used 15-degree increment angles. Don't overlook the special scale lock that makes it easy to change the scales, holds the scales rigid.

Your own test will convince you of the superiority of a Bruning Equipoise Drafter. Mail coupon today!

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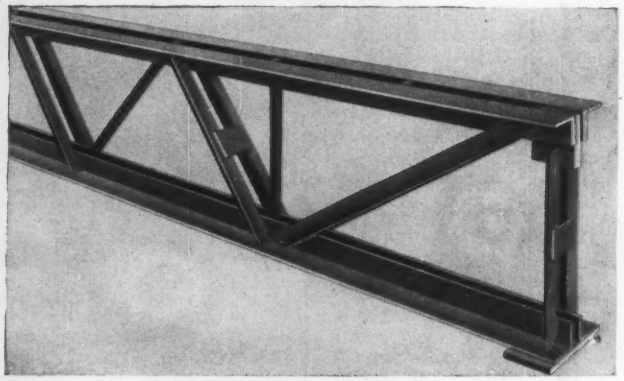
YOU'LL WANT TO KNOW ABOUT THE

Improved Bethlehem Longspans

Bethlehem engineers have made a number of improvements in our Longspan Open-Web Steel Joists. The design has been changed, depths and span ranges have been increased, some odd depths have been eliminated, and the standard nomenclature has been changed to conform to that recently adopted by the Steel Joist Institute. A catalog fully describing the new Longspans has just been published by Bethlehem. The changes are so extensive that you will probably want to discard your old catalog and send for the new one.



CHANGE TO WARREN-TYPE TRUSS

By changing the design of the Bethlehem Longspan Joists from a Pratt-type to a Warren-type truss, additional strength factors have been gained.

The Warren-type truss enables the joist to take the stress-reversals encountered when joists are framed into columns as stiffeners, as well as stress-reversals caused, for example, by wind uplift in a heavy storm, or by unsymmetrical loadings of either floor or roof, without the need for counter diagonals.

Simply stated, the new Bethlehem Longspan provides added protection against uncontemplated loadings at no extra cost.

PROVIDE CLEAR SPANS UP TO 96 FT

Modern structures such as school auditoriums and gymnasiums, garages and supermarkets demand increasingly greater clear space, unhampered by columns. By increasing the depth of the Bethlehem Longspan to 48 in. and the span range to 96 ft, the usefulness to architects of these joists has been greatly increased.

OTHER IMPORTANT DESIGN CHANGES

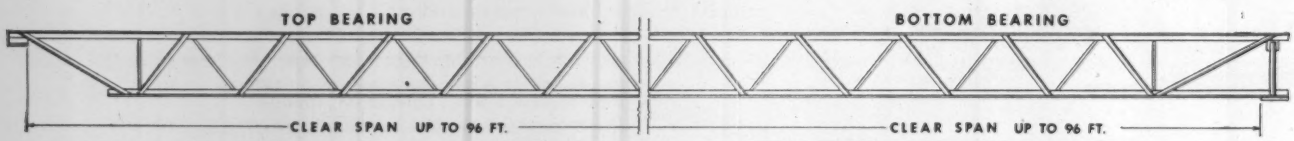
By using a double-angle system of chords with separation to provide for the web, the new Bethlehem design gives maximum lateral stiffness, making the joists easier to erect, and of course adding to the rigidity of the completed structure.

The separated pair of chord angles provides continuous slots in both the top and bottom chord for easy attachment of pipes, conduits and ducts, or the hanging of lighting fixtures, fans or heating units.

Pitched-top-chord Longspans now have a uniform pitch of ⅛ in. per foot, which simplifies the planning of pitched roofs. The type marks of the 18 in. and 20 in. Shortspan Joists have been changed to eliminate confusion with the Longspan series of the same depth.

WRITE FOR OUR NEW CATALOGS

We have just published a new catalog on Bethlehem Longspan Joists, describing all of the above changes and giving the new nomenclature and designations. We have also published a new catalog on our Shortspan Joists, in which the designations of the 18 in. and 20 in. sizes have been changed. A letter or postcard addressed to us at Bethlehem, Pa., will bring you copies of both catalogs by return mail.



BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

BETHLEHEM LONGSPAN JOISTS

BETHLEHEM STEEL

INTERNATIONAL

Canadian City Creates St. Lawrence Bureau

Montreal has created a St. Lawrence Municipal Bureau to coordinate all the city's varied interests and responsibilities in connection with the St. Lawrence deep waterways.

First director of the bureau is George S. Mooney, at present co-director of the Civic Industrial and Economic Bureau.

Specifically, functions of the bureau are "the safeguarding of the varied interests of the City of Montreal and its inhabitants in the construction and operation of the St. Lawrence Seaway, in the utilization and development of the port of Montreal, and in the general economic progress the Seaway and its related undertakings will bring to the Montreal region."

Mr. Mooney, commenting on his new assignment, said that "every citizen, every industry, and every public body in the Montreal area has a vital interest in the Seaway. It is important, therefore, that we approach the problems raised by the Seaway through concerted action and cooperative effort. It will be my endeavor to see that this is done . . . so that the Seaway project can become an asset to the Montreal region and not a liability."

Canada Pushes Hard On Hydro Development

Power development and transmission in Canada's maritime provinces has been a focus of attention recently with the release of a master power planning report by the Dominion Coal Board, and by the award of a $7-million contract for a new water power plant on the St. John River, New Brunswick.

The contract award (for $7,112,528) goes to Foundation Maritime Ltd. of Halifax, a subsidiary company of the Foundation Company of Canada Ltd., of Montreal. The plant is the Beechwood plant which will develop 135,000 hp. at a site on the St. John River, upstream of the N. B. capital city of Fredericton, in Carleton County.

The report on the general electric power situation in Nova Scotia and New Brunswick was made by Dr. A. G. Christie, Canadian born and educated professor of mechanical engineering at Johns Hopkins University. The report was made for the Dominion Coal Board, in view of the importance of coal as a power source in the two provinces, and it has been placed be-

"STUD" NELSON SECURES

REINFORCING MESH IN A FLASH!

In one effortless instant the NELWELD® gun securely fuses a rectangular stud to a steel member. Wire is then placed in the T slot of the stud where a few quick blows with a hammer permanently clamp the mesh in place. Securing wire mesh for guniting, fireproofing columns, special linings, etc. is a simple matter with the NELWELD® System.

RECTANGULAR STUD BEFORE AND AFTER WIRE IS SECURED

In addition, NELSON rectangular studs are successfully used to secure steel reinforcing, expanded metal lath and similar materials.

Consult your Nelson Field Engineer. He'll be glad to weld rectangular studs on the job to demonstrate this fast economical means of fastening. He can also discuss NELWELD® short cuts as they apply to your specific construction problems. Write for details.

Stud Nelson

Fasten it Better at Less Cost with

NELWELD

NELSON STUD WELDING
2744 Toledo Avenue
Lorain, Ohio

Please send more information on cost saving NELWELD construction applications.

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CITY AND STATE_____

NELSON STUD WELDING DIV OF GREGORY INDUSTRIES, INC LORAIN, OHIO

Easy. . . to handle
to drive
to locate . . .
and they're permanent!

The New Copperweld TRADE MARK Non-Rusting
SURVEY MARKERS

A thick copper covering prevents corrosion, while the steel core provides strength and rigidity for easy driving. The Copperweld Molten-Welding process makes the two metals inseparable.

*Trade Mark

At little cost, Copperweld* Survey Markers protect the investment of the original survey. They can't rust or rot, and they're simple to install—won't splinter or break. The bronze head can be readily center punched for precise reference. Want more details on this economical method for identifying survey points permanently? Write for Bulletin No. 144.

Standard length is 3 feet—other sizes made to order. Packed 10 markers to a carton.

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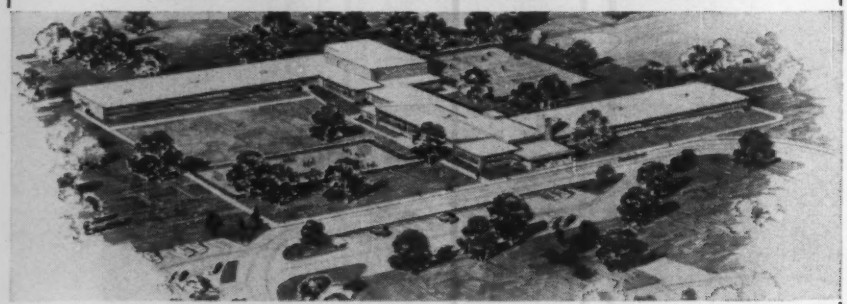
WIRE AND CABLE DIVISION • Glassport, Pa.
For Export: COPPERWELD STEEL INTERNATIONAL COMPANY, New York

Another POREX Roof



Four identical schools, Hicksville, N. Y.
Architect: Knappe & Johnson, New York City
Contractors: Gundersen Const. Co., Lynbrook, N. Y., Arthur S. Koch, Huntington, N. Y.

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★ HEAT INSULATION (U=0.15 Btu.)
★ LIGHT WEIGHT (Only 15 lbs. per sq. ft.)
★ SOUND CONTROL (Noise Red. Coef.=0.70)
★ LONG SPANS (8 ft. max.)
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fore the two provincial governments respectively. The report advocates a complete tie-in of the power systems of the two provinces, involving both water power and steam generated power. It suggests also the desirability of tying this combined power system with power lines in northern Maine, and also with the great power system being started with the Bersimis project on the north shore of the St. Lawrence, power from which is being brought across the Gulf of St. Lawrence to supply the Gaspe Peninsula, which borders on the northern border of New Brunswick.

Prof. Christie said that his proposal to join up the power systems in Nova Scotia and New Brunswick into one coordinated system might seem to be radical and he stated that it would require real statesmanship to bring it about over the influences of local politics and provincial pride.

Announce Completion Of Biggest Chinese Dam

According to reports in the magazine "Eastern World," Red China has completed construction of Fu-Tze-Ling Dam—a multi-arched structure said to be the largest in China and one of the largest of its kind in the East.

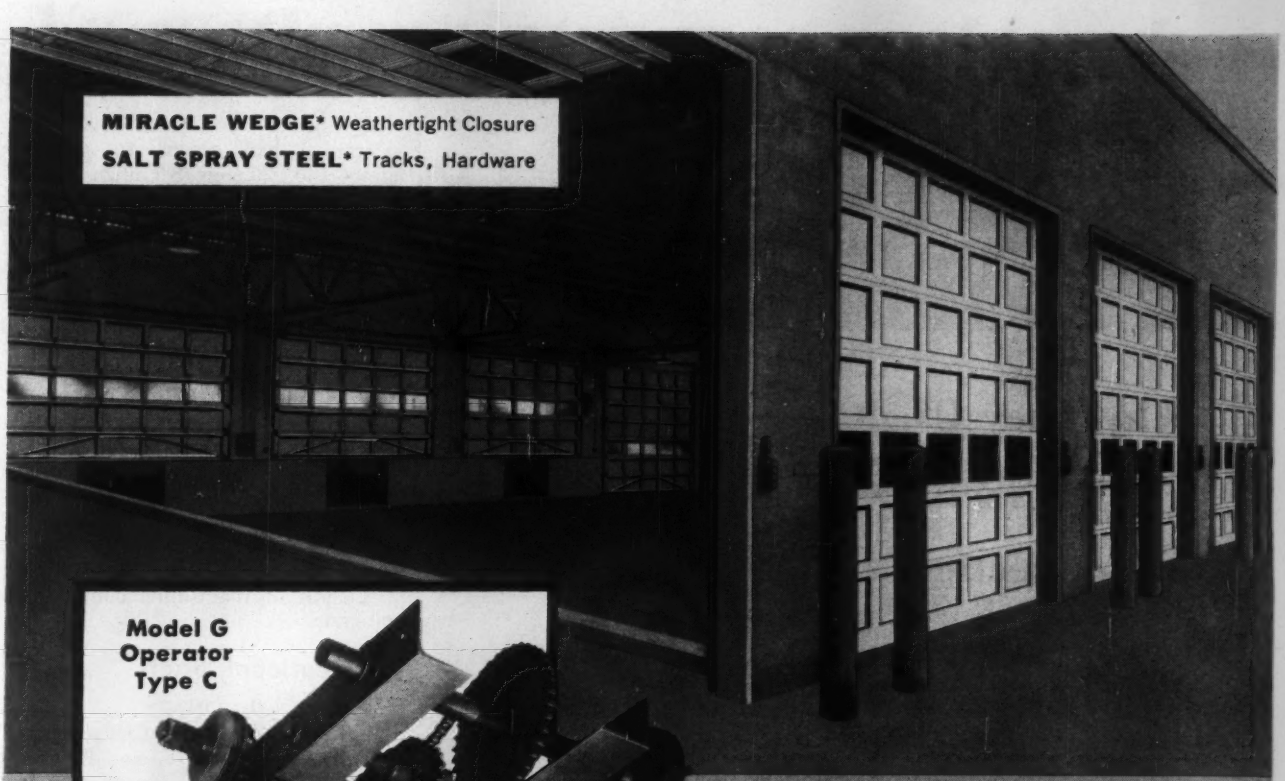
The dam has been built as a multi-purpose structure on the Pi River, a tributary of the Huai, in a deep valley in the Taipeh Mountains in Anhwei Province, central China. The concrete structure is 1,700 ft in length at the top, and is composed of 21 arches, the largest of which is 244 ft high. Built in two and a half years, the structure is a part of a general scheme for the control of the Huai River.

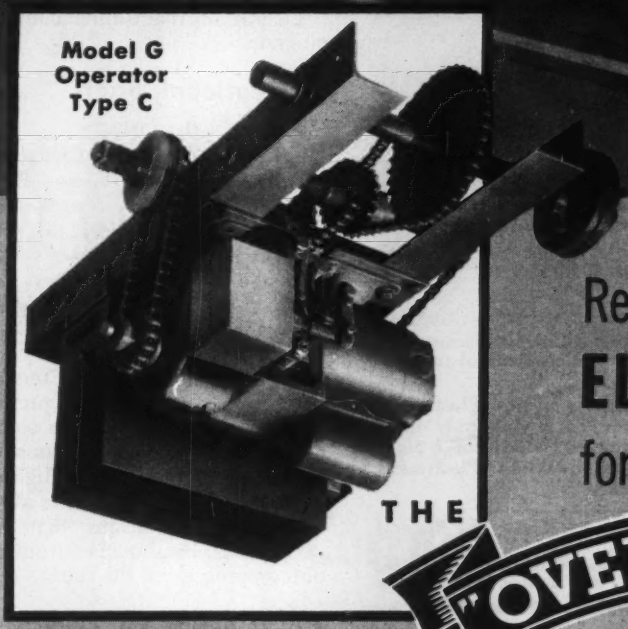
According to the magazine, construction plans were approved by Russian engineers; more than 10,000 workers were employed in the construction work; almost all equipment used in construction and installed for power purposes is Chinese made.

Havana Auto Tunnel May Be Built With Sugar

A French construction company has been awarded a contract to build a multi-million-dollar vehicular tunnel under Havana Bay—on a contract that reportedly provides that the French company purchase Cuban sugar in return for payments made to it.

Details of the contract were clouded in official announcements that the contract had been awarded on terms "best suited to the public interest." But earlier reports said that the French





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TRADE MARK

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Designed for easy installation, low maintenance cost. Electrical controls housed in one easily accessible box. 24-volt control circuits cut installation cost, eliminate hazards of high voltage. All models easily adaptable to time-saving electronic control.

Traditionally builders of the finest sectional, upward-acting doors, Overhead Door Corporation has a heritage of equal experience in the field of electric operators and control systems, dating back to the days when each operator was built by hand. Today, this cumulative experience has been combined with fresh ideas and intensive research to produce a new line of electric operators for every commercial and industrial need. Take full advantage of it—make every building more modern with electrically-operated doors.

Write For Specification Folder on All Models

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Hartford City, Indiana

Manufacturing Divisions: Cortland, N. Y. Lewistown, Pa. Dallas, Tex. Hillside, N. J. Nashua, N. H. Oklahoma City Portland, Ore.

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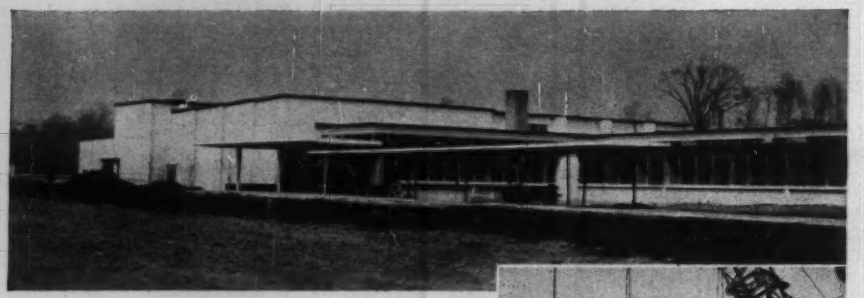
A COMPLETE LINE OF DOORS . . . A COMPLETE PRICE RANGE



Why They Used Plastiment in Connecticut's "Lowest-Cost-for-Highest-Quality" School

Using tilt-up construction methods in this school at Woodbridge, Connecticut, the contractor steel-trowelled the Plastiment-concrete floor slab, coated it with a parting agent, and cast 120 6-inch-thick Plastiment-concrete wall panels directly on the floor surface.

When the panels were lifted for tilting, the sides next to the floor were as smooth as the floor slab itself. The panels were turned and the bottom side used for the exterior face. No steel-trowelling of the wall panels was needed, since Plastiment-concrete's uniform surface was absolutely free of cracks, pock-marks or blemishes of any kind. Uniform surface was doubly important here because of the delicate pink color of the panels.

While Plastiment contributes uniformity and crack resistance through low water/cement ratio and retarded set, it also gains strength faster than ordinary concrete after the initial retardation stage, enabling the contractor to tilt up the stronger Plastiment-concrete panels sooner than with ordinary concrete, without risk of damage to open door and window sections.

Total savings — one steel-trowelling operation, plus a saving in tilt-up time, in Connecticut's lowest-cost school to date.

For complete details on how Plastiment operates to produce a uniformly high quality concrete, send today for a copy of the illustrated booklet, "Plastiment Concrete Densifier."

Project: Bethany-Orange-Woodbridge Regional High School
Architect and Engineer: Fletcher-Thomson, Inc., Bridgeport, Conn. A. J. Hawley, Chief Engineer
Contractor: The Gellatly Construction Co.

Sika

PLASTIMENT CONCRETE DENSIFIER

SIKA Chemical Corporation, Passaic, New Jersey

DISTRICT OFFICES: PITTSBURGH, PHILADELPHIA, SALT LAKE CITY, DALLAS, MONTREAL, CHICAGO, BOSTON, WASHINGTON, D. C., PANAMA CITY, R.P. • DEALERS IN PRINCIPAL CITIES

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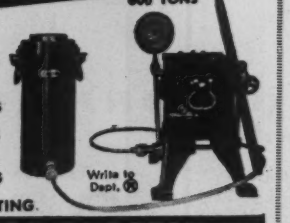
CAPACITY TO 600 TONS

FOR:
PILE TESTING
UNDER-PINNING
BRIDGES
PIPE PUSHING
SOIL TESTING



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Diamond Core Drilling

CORE BORINGS for Foundations, Dams, Bridges and all Heavy Structures
GROUT HOLES

Tinney Drilling Co.
Grafton, W. Va.

INTERNATIONAL

firm—Societe Des Grands Travaux De Marseilles—had agreed to purchase about 400,000 tons of Cuban sugar at the world market price. Protests were reported from U. S. sugar and construction firms, when the rumored agreement first became known.

The tunnel construction will be under supervision of the National Development Commission, the Ministry of Public Works, and other governmental agencies. Official announcements have said that several other foreign firms would participate in the construction work. In addition to the tunnel, the Cuban government is planning to build a $5.5-million, eight-mile access speedway through Havana to connect with the new tube.

Details of the tunnel construction program were not available.

International Briefs . . .

• **Russia sells**—Despite a reported critical need on the USSR's own inadequate highway system, Russia is prepared to sell road construction machinery on the world market. An advertisement in Moscow's English-language magazine News says the government will take orders for "grubbers, rippers, bulldozers, scrapers, etc."

• **Venezuelan highway**—Construction is scheduled to begin in September on a 70-kilometer highway, to cost about $21 million, between the port city of LaGuira and Higuerote. High cost of the short seaside roadway is attributed to blasting operations that will be necessitated by almost continuous rock outcropping along the route.

• **Israel drainage**—A $10-million program to provide sewage drainage for a population of more than 600,000 persons in the Jaffa-Tel Aviv, Dan region of Israel will be launched in a few months, according to Jaffa city officials. Plans prepared by British consultants, call for three large concrete interceptors to convey sewage to a point beyond the port city, where pumping stations will be erected.

• **Russian airports**—Russia has launched an ambitious airport terminal construction program at high-traffic points throughout the nation, according to official reports, plans have been approved for new terminal buildings in 20 cities.

• **Link completed**—Another link in the Pan American Highway was completed recently, when a 21-kilometer stretch between Costa Rica and Nicaragua was opened to travel.

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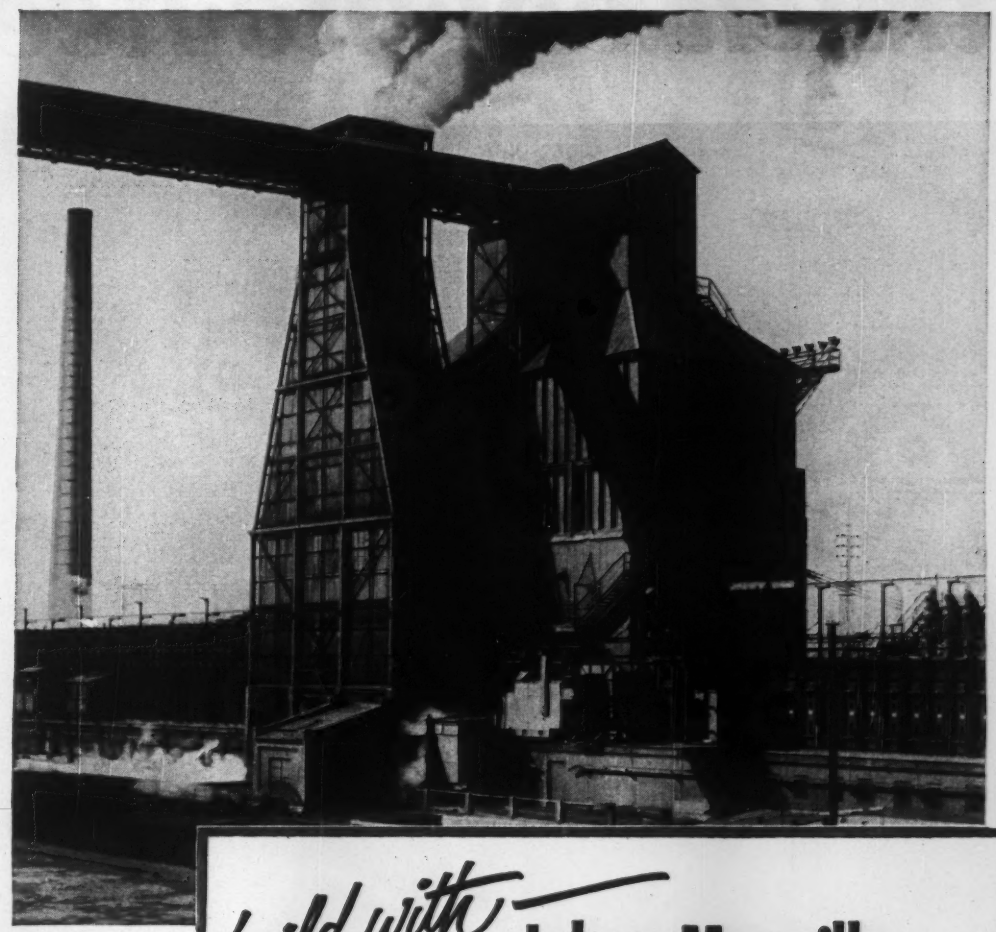

So severe are the steam and fume conditions in this coke quencher station, that the heavy structural steel framing is on the *outside*, protected by J-M Corrugated Transite

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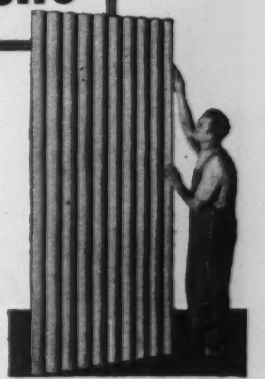

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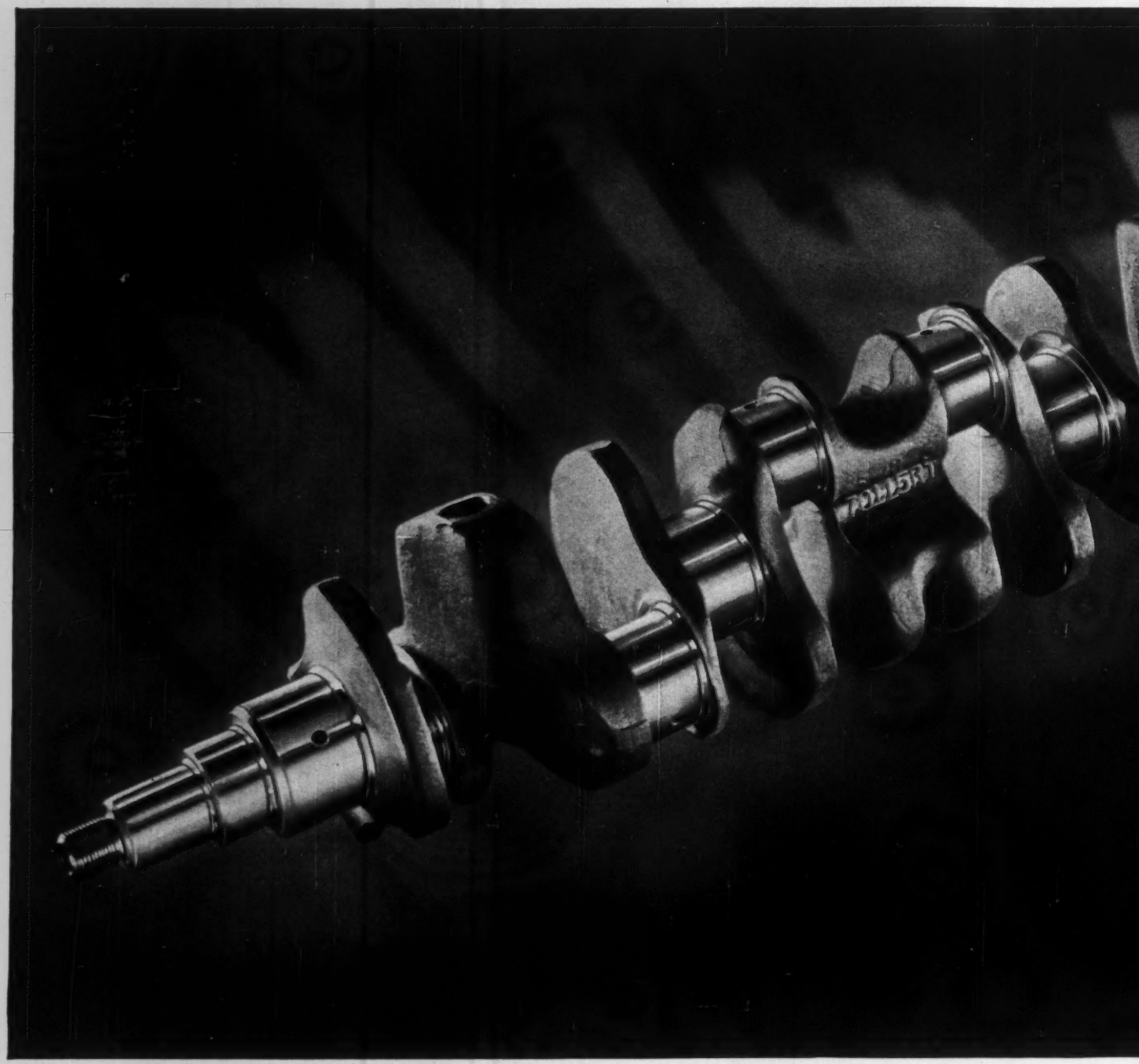

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Multi-purpose Cemesto Panels* with stone-like beauty build permanent, insulated curtain walls...quickly, economically!

ST. JOHN SHOPPING CENTER, St. John, Missouri, showing how Cemesto Panels combine with aluminum accessories to provide handsome, modern exterior.
Architect and Contractor: Fischer and Frichtel, Inc.

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More and more architects who seek versatility and low cost in building materials are specifying Cemesto Panels. Because here are Structural Insulating Panels that build attractive curtain walls when used alone . . . or blend harmoniously with other wall materials such as brick, stone, wood, glass, and metals.

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Each Cemesto Panel is a complete self-containing curtain wall unit with high insulation value, exceptional structural strength, and pleasing finish. The hard, smooth, stone-gray surfaces afford excellent light reflection and add new beauty. Panels can be worked with ordinary tools on the job, or pre-cut at the mill for faster application. Quickly attached to steel framing with metal accessories, or to wood framing with nails or screws.

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New extruded aluminum accessories aid Cemesto Panels in lending beauty to curtain walls. They have built-in Neoprene gaskets for weather tightness. Exterior face of these battens has a regular—or satin-finished—surface which harmonizes with gray Cemesto Panels.

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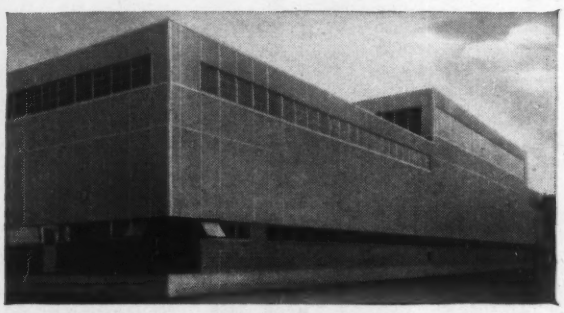
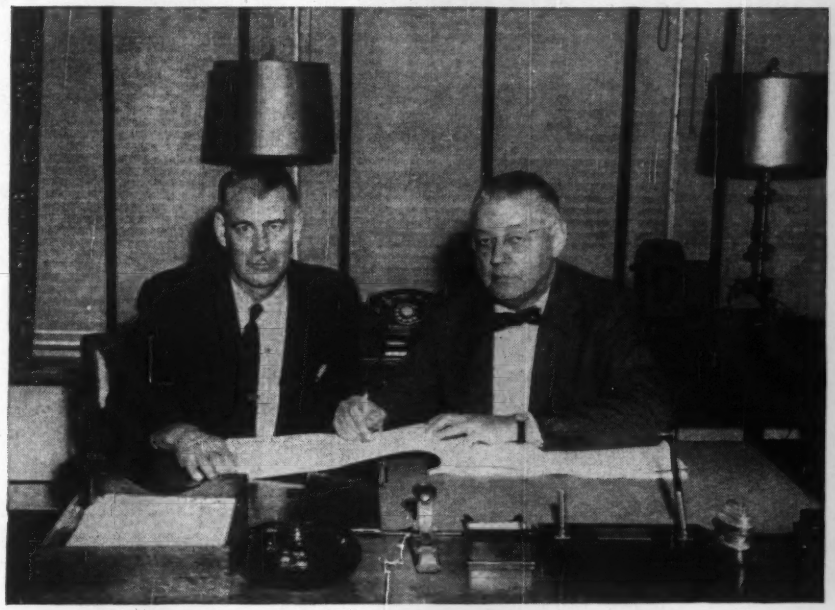
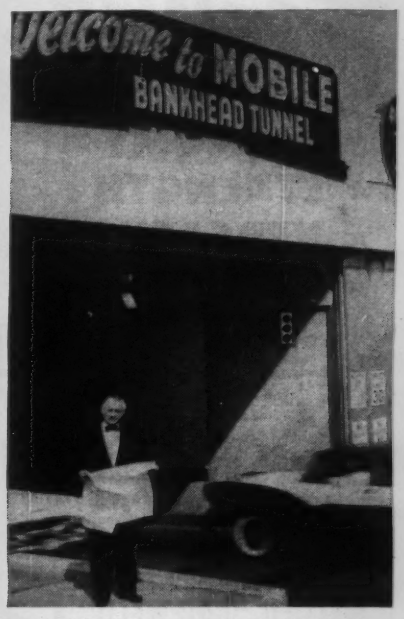


KEARNEY-TRECKER PLANT, Special Machinery Division, Milwaukee, Wis., presents striking exterior of Cemesto Panels with harmonizing stainless steel accessories. Total Cemesto Panel footage, including curtain walls and department partitions...70,000 sq. ft. Designer and Engineer: V. K. Boynton.



TOP MEN—Wayne Palmer (right) and Robert Baker started in buisness together in 1941, after previous association in a predecessor firm. Palmer had a lot of varied experience before that as a writer, engineer, and Washington administrator.



TUNNEL—Palmer stands beside the tunnel under the Mobile River that made his firm famous for difficult projects.

Palmer & Baker: They Like the Impossible

Wayne F. Palmer, of Mobile and New Orleans, is one engineer who has few worries over competition.

The reason: the firm of which he is president, Palmer & Baker, Inc., likes best to take on jobs that bear the label "impossible."

This fondness for the difficult has paid off for the firm which in 17 years since it was founded has grown from virtually a one-man organization into one with a permament staff of 200 engineers and clerical workers.

And while 17 years ago its struggle for existence centered around its ability to sell the people of Mobile on the feasibility of a tunnel under the Mobile River, today it has under contract $250 million in projects, approximately $70 million of which are tunnels.

Sitting relaxed in his New Orleans French Quarter apartment (he maintains his principal home in Mobile), the 60-year-old Palmer summed up his company's policy:

"We involve ourselves principally in problems of transportation. We do not go after routine work and therefore we get into very little competition in engineering. We actually look for the difficult in engineering."

The "difficult" of which he talks may not necessarily be so from the engineering standpoint; more often than not it involves the attitude of the community, or individuals in the community. The project may admittedly be desirable, but "it can't be done."

"We show them how it can be done," says Palmer.

• **"Impossible" turnpike**—As he sat talking, his work crews were surveying the route for an 89-mile "impossible" turnpike from Lafayette to Lutcher, La., a $100 million project which would include nine major bridge structures, one of them across the Mississippi river.

"It is one hell of a job," he commented, but he said it with relish.

The four-lane highway would traverse some of the wildest terrain in the nation—a sparsely settled area where water is the major mode of transport. But it would cut 46 miles in the distance between New Orleans and Lafayette and Texas to the west.

Palmer considers it as one of the difficult engineering projects of the country. About half of the road would run across dry land, the rest through marsh and swamp. In the worst areas, trestles will be built rather than embankments—a total of about 18 miles of them.

At present, he has seven work parties on the scene, one of which operates from a quarterboat. The crews have at their disposal eight aluminum-hulled power boats which are able to navigate the shallow waters of the swamps. It was necessary to purchase $7,000 of radio equipment to control the job.

The survey parties are properly impressed by the wildness of the country. In their reports, they regularly take note of days in which they killed as many as 154 water moccasins and rattlers.

On this project, Palmer & Baker is working against a deadline. Under terms of an agreement, actual construction has to start by the end of 1955, and feasibility studies and financing have not been completed yet.

But tough deadlines are old stuff to Palmer, who recalls that in 1938 he had less than 15 days to meet a construction-start deadline for the Mobile Bankhead tunnel and in that time had to prepare plans and specifications and advertise for bids.

On the day of the deadline, he had 100 men with picks and shovels breaking ground so that he could comply with legal requirements. He then shut down the job for 60 days until

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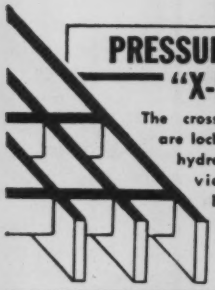

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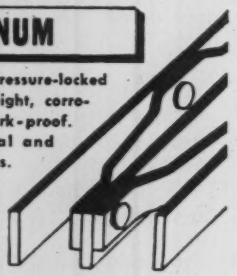

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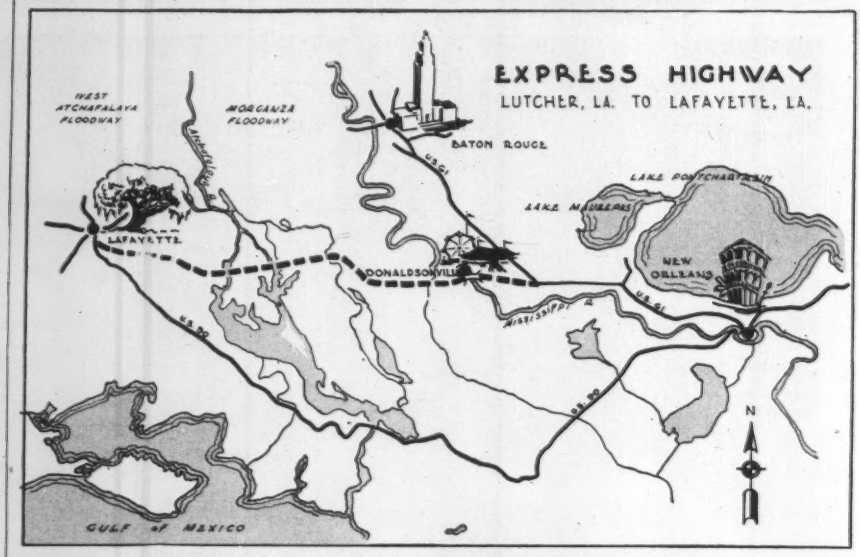

THE ACADIAN WAY is designed to connect New Orleans with Lafayette, on the main route toward Beaumont, Houston, and other Texas cities. DeLeuw Cather's traffic report is expected around the end of this month.

he could get proper plans and specifications completed.

• **Company policy**—Palmer & Baker does not hestitate to take on speculative projects if they are convinced of their merit.

"If someone calls us in on a project," says Palmer, "we'll go in on our own and do a lot of work at our own expense. If we find that the project is feasible, we'll go ahead, spend more of our money if necessary. If not, we'll drop it. We don't like to write reports."

This willingness to invest large sums of the firm's money on projects which are often considered "impossible" has led to Palmer establishing a policy of maintaining substantial reserves. This calls for maintaining one full year of operating reserve, in the event that in that period the firm might not take in as much as $1.

But a surprisingly large number of the speculative projects which the company undertakes become realities and thereby bear endorsement to Palmer's sound business sense as well as engineering know-how.

Among such speculative Palmer & Baker projects which have or are becoming fact was the firm's initial undertaking, the Bankhead tunnel under the Mobile River, and the Lake Pontchartrain Causeway near New Orleans.

Palmer & Baker was the engineer on the Washburn tunnel under the Houston ship channel and has two smaller tunnels under construction in the New Orleans area—both under Intracoastal Waterway links.

• **Tunnel vs. Bridge**—In a built-up area, Palmer believes, a tunnel is always superior to a bridge because there is less property damage involved. With that in mind, he is spreading the tunnel gospel throughout the world.

Other Palmer & Baker tunnels taken through the design stage include one under the Industrial Canal in New Orleans, another at Galveston, Tex., two for the Florida state highway department in the Fort Lauderdale area, and four-lane tunnels under the harbors of Havana, Cuba, and Gothenburg, Sweden.

In addition, Palmer and Baker has just started studies for tunnels under the Fraser River at Vancouver, B. C., and under the Yarra River at Melbourne, Australia.

• **Palmer as inventor**—A native of Fort Wayne, Ind., Palmer was educated at Andover and received his B.S. degree at Dartmouth in 1917. The first World War found him in the Navy, where his mechanical talents were put to good use. He presented the Navy with one of two fundamental designs for magnetic mines.

After the war, he was put in charge of the mine laboratory at the Washington Navy Yard. He acquired a total of 17 patents, with all but two for Naval use. Several patents had to do with structural torch cutting devices.

He left the Navy in 1921 and for the next 10 years served as vice-president and general manager of the Palmer Steel Company of Springfield, Mass., a family concern which he or-

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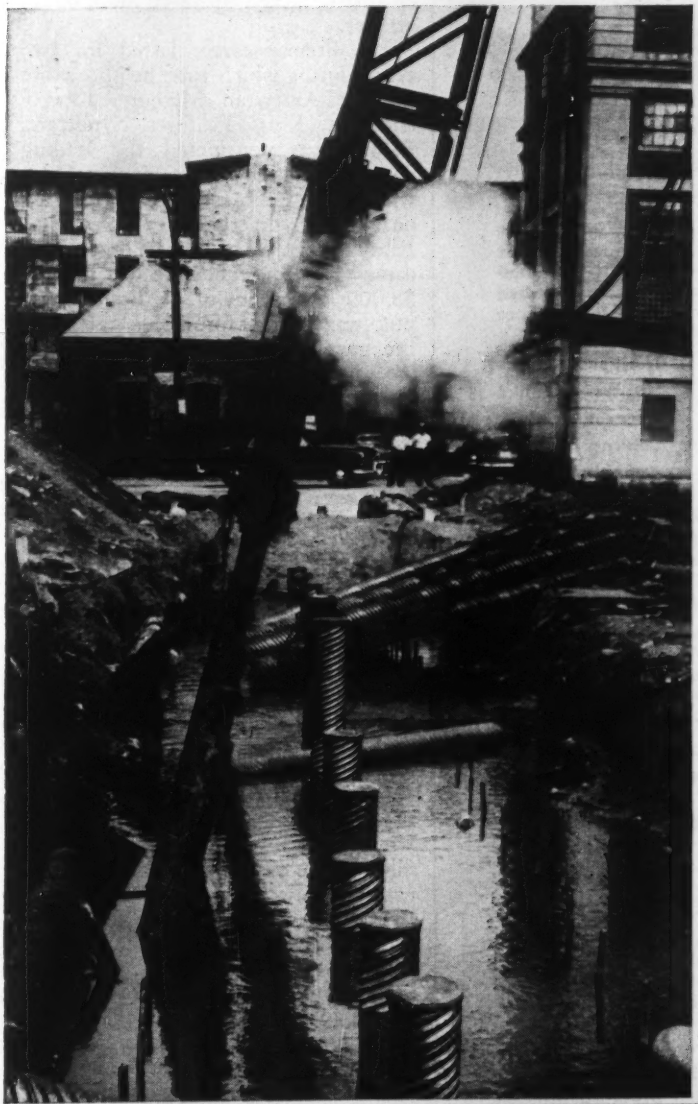

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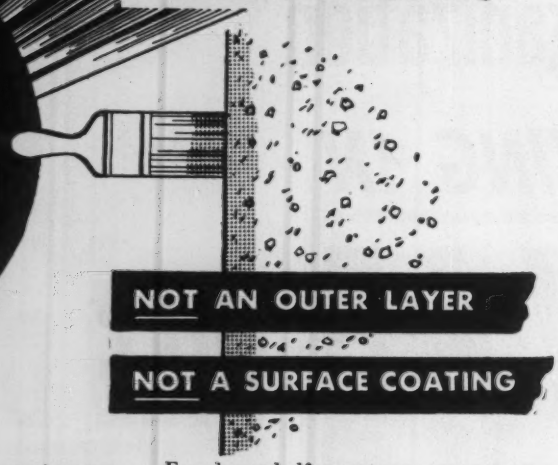

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ganized with his father, Earl Palmer, and a brother, Raymond. Lack of business during the Depression led to a decision to liquidate the firm. By that time it had built 1200 bridges and buildings in northeast New York state and New England.

• **Naval authority**—"It was then," recalls Palmer, "that I turned to the thing I really loved to do—writing." The first article he wrote, one dealing with his experiences in the Navy, was sold to New Outlook and was reprinted in Readers Digest, which subsequently picked up three more of his articles.

His literary career lasted for two years, during which time he also wrote for the American Mercury, Liberty and for King Features Syndicate. Palmer was considered the leading naval critic at the time—Hanson Baldwin, whom he knew, was just starting out. "I got diverted, he kept at it," Palmer says. The diversion, which came at a time when he was making $8,000 a year out of his literary output, was in the form of a call from the government, which brought him back into engineering.

It could well be called a turning point in his career, but he notes that "everything a person does is a turning point. It was one of those things you don't even notice at the time."

There came a period in which he was connected with the NRA in charge of steel codes and later as chief of staff of the industrial advisory board. His government career ended with a stint as head of the housing advisory board of the FHA.

"The entire board after a year resigned in a body with the statement that it was easier to manufacture advice than dispose of it," he recalls. "Nobody wanted advice."

He also notes that while he was in Washington "we were supposed to solve all the economic problems of the nation by working from blueprints. Everything was supposed to fit together perfectly, but it never did."

• **Consultant**—In 1935, Palmer returned to private engineering, becoming a member of the partnership of Blake Snyder and Wayne F. Palmer. The firm did engineering and financial consultant work—about half and half—in New York and Washington.

The history of Palmer & Baker, Inc., could be said to begin in 1938 when Palmer went in as vice-president of Wilberding & Palmer, of Washington and Mobile. After awhile, the partners decided to divide their interests, with Wilberding operating

from Washington and Palmer from Mobile. Robert R. Baker, who in 1941 was to become vice-president and chief engineer of Palmer & Baker, Inc., joined Wilberding & Palmer in 1939 as assistant to the chief engineer.

• **Turning point**—In June of 1938, shortly after organization of the Wilberding & Palmer firm, came another turning point in Palmer's career. While in Pensacola, Fla., on the firm's business he had occasion to travel to nearby Mobile. A half-mile from the city and in sight of its buildings he found himself blocked by the Mobile River. The idea for the Bankhead tunnel began to take shape in his head as he drove another eight miles to get into the city.

He lost no time broaching his idea to Mobile civic and political leaders, only to be told "it can't be done." His idea was not new and it had been found, he was told, to be economically not feasible. It was also "impossible" to build a tunnel under that river.

Although the city council refused to finance a study for the proposed tunnel, it finally authorized Palmer to negotiate with the Public Works Administration and the Reconstruction Finance Corporation after he told them he would finance his own study.

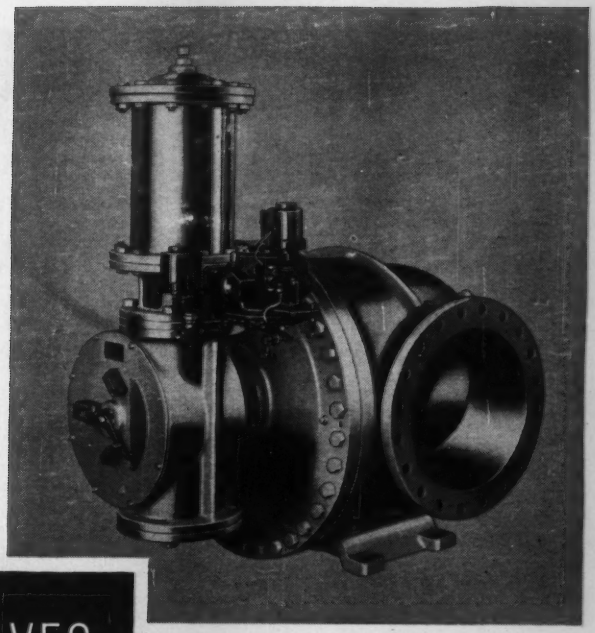
"The city council," he said, "was so convinced that it was impossible that they voted for it in order to get rid of us. It was only after the impossibilities faded that opposition really materialized."

He was warned that the tunnel would float away downstream, that quicksands would swallow up the sections. His estimate that the tunnel would cost $4 million was poohpoohed; it would cost at least $8 million, he was told.

"What the faint hearted did not realize," Palmer said, "is that all tunnel construction is difficult. None is easy. Tunnel construction is the science of overcoming difficulties. Well, we went ahead with that tunnel. It cost $4,080,000 and it has yet to float away or sink."

• **P & B projects**—Apart from bridge and tunnel work, the firm has had several other large projects, including the $30 million Forrest Sherman jet air field which is an adjunct of the Naval Air Station at Pensacola, Fla. It has also done lesser air-field work for the Army and Navy. Right now, the firm is in charge of a $22 million paving and storm drainage program for Mobile, at conclusion of which every street of the city will be paved.

More satisfying to Palmer than the size of the project is the fact that, except for small assistance from



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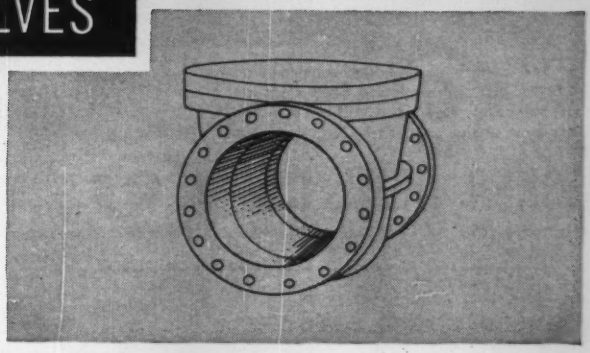

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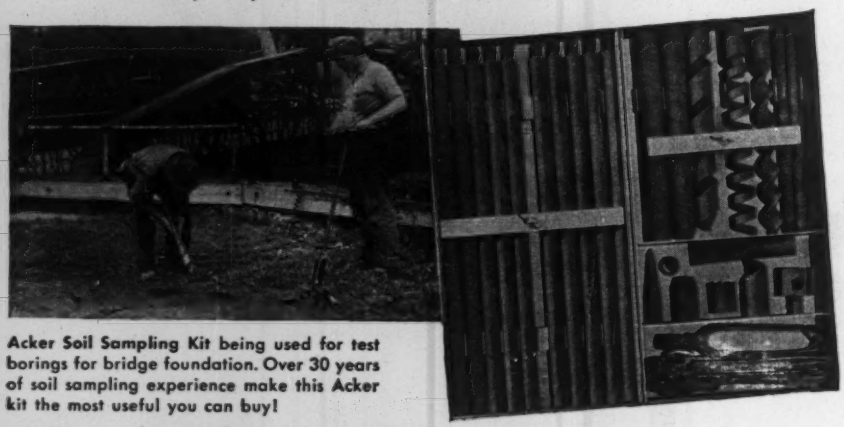

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WATER WELLS
VERTICAL TURBINE PUMPS
WATER TREATMENT

abutting property owners, the entire program is being financed from tolls of the Bankhead tunnel which he had been told could not be built.

"We could have freed the tunnel of tolls four years after it was completed," he said, "and already the city of Mobile has received a clear $7 million in revenue which it has used on street work."

• **P & B staff**—The Palmer & Baker staff includes:

Robert R. Baker, who had been with Wilberding & Palmer, became vice-president and chief engineer of the new Palmer & Baker, Inc., in 1941. Since 1947, he has been vice president. Baker's role is trouble-shooter and director of special projects.

Rear Adm. William H. Smith, CEC, USN (Ret'd), who joined the company in 1948 as vice-president and chief engineer. He formerly was one of the top design and administrative engineers of the Bureau of Yards and Docks.

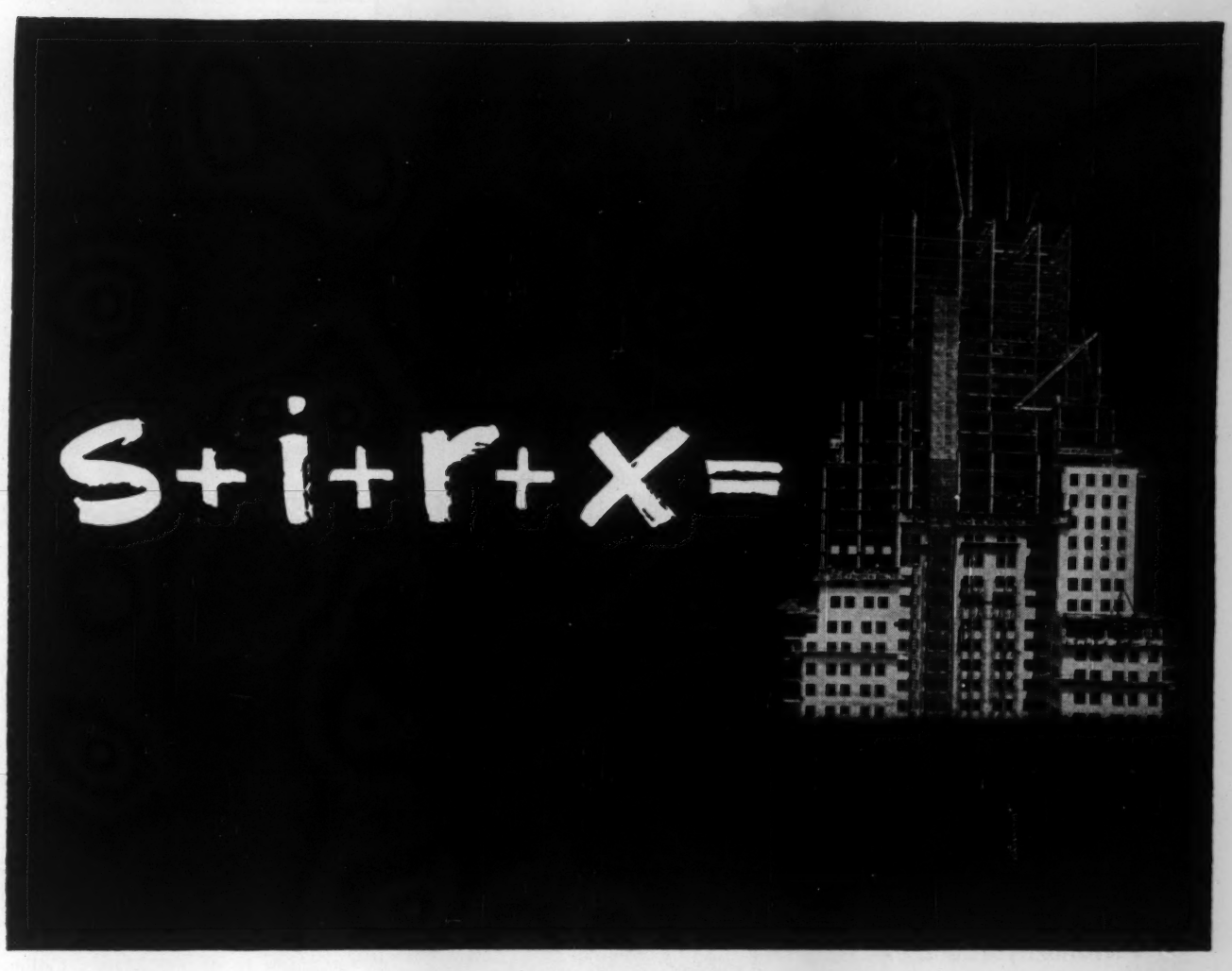
Kenneth C. Roberts, who joined the firm in 1951 as assistant chief engineer for design. He had been conected for 12 years with the TVA and for the last four years was an administrative and technical head in the design department.

Rear Adm. Lewis N. Moeller, CEC, USN (Ret'd), who joined the company in 1953 as assistant chief engineer in charge of inspection and supervision of construction work. He had been connected with the Bureau of Yards and Docks in charge of design, administration and supervision of major naval engineering works.

Most recently, Brig. Gen. Joseph Twitty joined Palmer & Baker as resident engineer for the Greater New Orleans Expressway (Lake Pontchartrain causeway). A veteran Army engineer, he had been in charge of the ports of Seoul and Inchon and directed the evacuation of all forces and equipment at Hungnam.

Associates of Palmer credit the top-flight men with whom he surrounds himself for much of the firm's success.

"He'll appraise a job which its sponsors may be somewhat dubious about for one reason or another. It may be that Palmer for all his optimism may have a few misgivings himself. But he'll tell them that it can be done and then tells his engineers to do it. And they do."



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OBITUARIES

Frank A. Backman, 53, assistant to the vice-president and general manager of Kaiser Engineers Division, Henry J. Kaiser Co., died May 12. A civil engineering graduate of the University of Southern California, he joined the Kaiser organization in 1931 as an engineer on Hoover Dam project. Later he served as general construction superintendent during construction of the Kaiser steel mill at Fontana, Calif., and as project manager for construction of Kaiser Aluminum & Chemical Corp.'s aluminum reduction plant at Chalmette, La.

Edward A. Kemmler, 85, former Akron, O., city engineer, died in Columbus, O., May 19. Early in his career he was an assistant professor of engineering at Ohio State University and an engineer with the city of Columbus. He went to Akron in 1910 to make the first survey for Akron's municipal water system and remained until the waterworks project was completed in 1916. Later he served as chief engineer for Coventry Land & Improvement Co. and as highway engineer for Akron.

Joseph R. Guptill, 64, construction materials sales engineer for Columbia-Geneva Division, U. S. Steel, died May 16 in Oakland. A civil engineering graduate of St. Mary's College, he served with the Corps of Engineers during World War I. He had been with Columbia-Geneva in San Francisco headquarters since 1938.

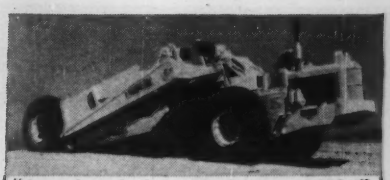
Rollin F. MacDowell, 68, head of Rollin F. MacDowell & Associates, a Cleveland firm specializing in sanitary engineering, industrial waste and water treatment, died May 25 in South Euclid, O. He was a 1909 civil engineering graduate of Ohio State University and served as Cuyahoga County, O., sanitary engineer from 1921 to 1925.

Guy H. Ferguson, 67, project engineer attached to the Public Housing Administration's San Francisco field office, died May 19 in Berkeley, Calif. He was associated with numerous housing projects in California and served in Hawaii from 1950 through 1954 as PHA representative. Before joining a PHA predecessor agency in the 1930's he was a contractor in Cleveland.

Jeremiah L. Ames, 68, civil engineer since 1927 for Western New York

US RUBBER

United States Rubber Company 4-year project pays off—
construction men report they're well ahead with U. S. Royal!



"On rock work, tire service increased 300%"

says H. Earl Parker, Marysville, Calif.

"On tough jobs like Pine Flat Dam, we've had a tremendous increase in tire service since we switched to U. S. Royal Nylon Con-Trak-Tors. This has meant a substantial decrease in downtime on heavy equipment and a real economy for us in operating costs."

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The U. S. Royal Con-Trak-Tor, an important result of U. S. Royal's 4-Year Truck Tire Project, is increasing service life and reducing equipment downtime for leading construction men like Mr. Parker.

Good reasons, too! The Con-Trak-Tor's *Nylon cord carcass* stands up to vicious shocks, fights off rocks and snags. It has *triple impact protection*—extra rubber between plies, double shock-pads under the tread, extra-tough construction at the crown. Its *full lug traction* pulls right through toughest going, just *won't* bog down.

Why not let the U. S. Royal Con-Trak-Tor increase *your* tire service, reduce *your* downtime, lower *your* operating costs? Your U. S. Royal Dealer has this great tire in your size. Have him put it on your wheels—and prove to yourself why construction men like Mr. Parker report they're *well ahead* with U. S. Royal!

U.S. ROYAL NYLON CON-TRAK-TOR FULL LUG

MULLER MIXERS *and* POWER TROWELS
set quality standards in their fields

Muller's earliest objective—to make the best possible plaster and mortar mixer and sell it for the lowest possible price—was achieved by: (1) specialization on a few models . . . (2) careful selection of materials and components . . . (3) experienced workmanship . . . (4) sound distribution methods. Other Muller Machines, also, rank high in their fields for the same reasons.

PLASTER AND MORTAR MIXERS

Made in 2, 3½, 6, 6 to 8, and 9 cu. ft. sizes. Electric motor or gas engine power. All models have Muller Lifetime Paddle Shaft Seal to protect bearings. Power throwouts on smaller models, built-in disc clutch on larger. Many other features. Priced $180 to $996 FOB Factory. Rubber scraper blades are available for all sizes.

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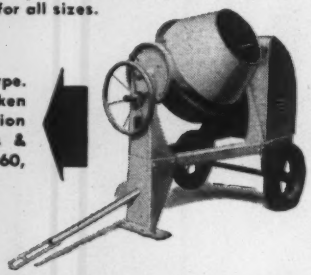
3 models, 3 to 6 cu. ft. capacities, tilting type. Ample size drums, fast mixing action, Timken Bearings, electrically welded, sturdy construction throughout. Power—electric motor or Briggs & Stratton Air Cooled Engines. Prices $230 to $660, FOB Factory.



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OBITUARIES

Water Co. and its successor, Western New York Water Authority, died May 25 in Buffalo, N. Y. He was graduated from Clarkson College and St. Lawrence University.

Hiram W. Barnes, 66, civil engineer and sales manager for the Dolomite Products Co., Rochester, N. Y., died May 24. He was a former president of the New York State Crushed Stone Association.

Walter W. Fleming, 58, for many years a civil engineer in the bridge bureau of the Ohio State Highway Department, died May 17 in Avon Lake, O. For the past seven years he was associated with Horvitz Co., Cleveland. He was a graduate of Ohio State University.

Joseph N. Barnett, 67, Long Beach, Calif., civil engineer, died May 9. At one time he served as assistant engineer for San Francisco's Hetch Hetchy water system.

Jacob M. Eakin, Sr., 72, Sandusky, O., city engineer from 1921 to 1934, died May 22. He later was associated with Porter Erkhart Engineering Co., turnpike engineers.

Charles S. Thrasher, 78, civil engineer and former city manager of Daytona Beach, Fla., died May 25 in Park Forest, Ill. He was an executive of the Lundoff-Bicknell Construction Co., Cleveland, before retiring in the 1940's.

Oscar G. Hiveley, 69, for 41 years county superintendent of highways of Stephenson County, Ill., died May 12 in Freeport, Ill. He received his civil engineering degree from the University of Illinois in 1909, and from 1910 to 1912 worked for the Illinois Division of Highways. Since 1951 he had operated a private consulting engineering and land surveying business in Freeport.

Philip J. Clark, 45, qualification engineer for the Indiana Toll Road Commission, died June 1 in Indianapolis. Earlier in his career he served as acting city building commissioner at Indianapolis and from 1947 to 1950 held the post of city engineer at Tipton, Ind. He attended Wabash College and Purdue University.

Orin L. Oertel, 62, an engineer for the John W. Cowper Co., Inc., Buffalo, N. Y., died April 25 in Florida. He had been with the contracting firm for more than 25 years.

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AIR
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SPRAY
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OIL AND GASOLINE
•
PROPANE AND AMMONIA VAPOR
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WELDING

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Hewitt-Robins SERVALL All-Service Hose is specifically designed to withstand the maximum abuse of *all* the general services, although light in weight and extremely flexible to provide maximum ease in handling. It's a moderate price heavy-duty hose that renders excellent performance in a great variety of services.

The *tube* is smooth, high-quality synthetic rubber blended to exact specifications to resist the highly injurious action of the diversified materials handled in this service . . . the *carcass* is braided, high tenacity synthetic cord impregnated and imbedded in synthetic rubber which provides maximum strength with minimum bulk. The *cover* is long wearing, tough synthetic that withstands gasoline, oil, weak inorganic acids and alkalies. It also resists weathering, sun and abrasion. This hose comes in sizes from ¼" x 1 braid to 1½" x 3 braid with maximum working pressure from 200 to 300 lbs. and lengths in 500' bales or cut to specification.

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SPRAY SERVICE: For most insecticides and many oil base weed killing solutions, for paint spray (not lacquer) service in home and shop.

OIL & GASOLINE: For intermittent service (not static grounded), grease, kerosene and other petroleum derivatives.

PROPANE AND AMMONIA VAPOR: For low pressure service as used on agricultural applicators and LPG vapor lines.

WELDING HOSE: For heavy-duty single line service with flame and ozone resistant cover.

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CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded—First Section—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager
J. A. MAHONEY, M. WETZEL, L. M. WINISKI, M. E. SCIORRA, F. S. DEMBEK, Reports.
J. H. WEBBER, M. R. ROESSLER, E. R. HUBER, Statistics.

NEW ENGLAND

HEAVY CONSTRUCTION—LB & CA

▲† **Frouge Constr. Co., Inc.,** 141 North Ave., Bridgeport, Conn., LB, **$901,213** "A", Portland, LB **$849,720** "B", Farmington and Plainville; LB **$861,100** "C", Simsbury and Bloomfield and Avon; LB **$2,592,000** "D", Combination of A B & C; LB **$1,699,000** "E", Combination B & C only excluding "A", Special AAA facilities, in 5 packages, Greater Hartford Area, CONNECTICUT. U. S. Eng., 857 Commonwealth Ave., Boston, Mass. Bids June 3. CD 5/16.

BUILDINGS—LB & CA

F. F. Smiley Constr. Co., 115 Trenton St., Pawtucket, R. I. CA Approx. **$500,000.** MILL addn., 473 Pleasant St., FALL RIVER, MASS. Pilgrim Latex Thread Co., 473 Pleasant St., Fall River, Mass. Bids Mar. 22. CD 3/18.

▲ **M. Spinelli & Sons, Inc.,** 25 Moulton St., Cambridge, Mass. CA **$3,586,000,** est. $3,600,000. Proj. Mass 1-3 HOUSING, Bishop Markham Village, Gorham St., LOWELL, MASS. Lowell Housing Auth., 18 Market St., Lowell, Mass. CD 5/23, under LB.

Ralph Hall & Richard Houghton, Bridgwood Dr., North Attleboro, Mass. Separate Contracts. **$700,000.** RESIDENTIAL DEVELOPMENT, 50-60 single houses, PLAINVILLE, MASS. John Grimaldi, Chestnut St., North Attleboro, Mass., designer.

Wadhams & May Co., 15 Lewis St., Hartford, Conn., CA, **$908,415,** est. $900,000, Thomas Jefferson Elementary SCHOOL, Horse Plain Rd., NEW BRITAIN, CONN. City, Walnut Hill School, New Britain, Conn. Bids May 26. CD 6/2, under LB.

▲ **Monaco Constr. Co.,** 104 Reservoir Ave., Bridgeport Conn., LB, **$1,727,000** SENIOR HIGH SCHOOL, NEW CANAAN, CONN. Town Bd. Educ., Senior High School Bldg. Comn., Harry Marshall, chn., South Ave., New Canaan, Conn. Bids June 2. CD 5/4.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

▲† **N. J., Wrightstown**—SHOPS, etc.—BA 6/22—U. S. Eng., 2635 Abbotsford Rd., Phila., Pa., 4 organizational maintenance shops, 3 squadron operations bldgs., addnl. shops and bldgs. utilities, site imprvs., McGuire Air Force Base, ENG-36-109-55-86, $3,000,000. Proter Urquhart & Beavin, 415 Frelinghuysen Ave., Newark, N. J., archts. CD 9/13/51.

N. Y., New York—TRACK, etc.—BA 6/24—New York City Transit Auth., 370 Jay St., Brooklyn, Zone 1, track, contact rail and roadway changes in Lenox Ave. Yard in connection with Harlem River Dr., Contract T-111; replacing contact rails on Corona-Flushing Line, New York City Transit Sys., IRT Division. Contract M.T.-120.

N. Y., New York — UNDERGROUND TRANSMISSION SYSTEM—BA 6/24—New York City Transit Auth., 370 Jay St., Brooklyn, Zone 1, furnish, install 69 KW underground transmission sys., 75 Street Substation to 128 St. Sub-station, Contr. P-98, Manhattan Boro. Plans deposit $2.50.

N. Y., New York—TURBINE GENERATOR—BA 7/8—New York City Tranist Auth., 370 Jay St., Brooklyn, Zone 1, furnish, install 60,000 kw turbine generator for 74 Street Power Plant, Contr. P-141, Manhattan Boro. Plans deposit $2.

N. Y., Brooklyn—BOILER—BA 7/22—New York City Transit Auth., 370 Jay St., Brooklyn, Zone 1, furnishing, installing one 575,000 lb. per hr. steam boiler for the Kent Ave. Power Plant, Contract P-121. CD 8/31/45, under New York.

† **Delaware**—Bids Asked—U. S. Eng., 2635 Abbottsford Rd., Phila., Pa., South Jetty repairs, Indian River Inlet, Sussex Co., No. 36-109-55-106. $100,000. Extended date. CD 4/27.

BUILDINGS—BA

Md., Baltimore—CHURCH—BA 6/21—Christ Lutheran Church, Charles and Hill Sts., church, $450,000. Plans deposit $25, P. H. Frohman, 1107 19 St. N.W., Wash. D C., archt. CD 9/10/53.

† **N. Y., New York**—COURT FACILITIES—BA 6/29—General Services Admin., Public Buildings Service, 250 Hudson St., addnl. court facilities, U. S. Court House, Foley Square and Park St.

N. Y., Farmingdale—GYMNASIUM—BA 6/30—Bureau Contracts & Accounts, New Governor Alfred E. Smith State Office Bldg., Albany, Zone 1, conversion of hangar into gymnasium bldg. at State University Long Island Agricultural & Technical Institute. Plans deposit $10. CD 9/27/46.

BUILDINGS—SLC

▲ **Md., Cumberland**—PLANT—Pittsburgh Plate Glass Co., 632 Fort Duquesne Blvd., Pittsburgh, Pa., soon lets contract block, steel, glass mfg. plant, $1,600,000. Lockwood Greene Engineers, Inc., 10 Rockefeller Plaza, New York, N. Y., engr. CD 6/1.

▲ **N. Y., Garden City**—STORE—Fordyce & Hamby Assoc., archts., 29 W. 57 St., New York 19, N. Y., soon lets contract, 2 story department store, Franklin Ave. between 12 and 13 Sts., for Lord & Taylor, 5 Ave. and 38 St., New York 1, N. Y. $2,000,000. CD 3/21.

▲ **Pa., Ardmore**—DEPARTMENT STORE, etc.—Thalheimer & Weitz, archts., 1325 Walnut St., Phila., soon lets contract department store and parking lot for Ardmore Shopping Center, Att. Albert M. Greenfield Co., 1325 Walnut St., Phila., Pa., $3,000,000. CD 12/28/54.

HEAVY CONSTRUCTION—LB & CA

NEW YORK—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany,
Louis Mayershohm, 36 State St., Albany, N. Y. CA **$722,731,** est. $966,000. 7.7 mi. New York State Thruway Hudson Sect.-Sub. 8 (Suffern-Nyack Pts. 1 and 2). H.T. 552P, Rockland Co. CD 4/19, under LB.

NEW YORK—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany,
Binghamton Constr. Co., Inc., Marine Bldg., Binghamton, N. Y. CA **$504,970.** Est. $623,000. 11.96 mi. Barker SH 375, Chenango Forks-North Fenton SH 1241; Port Crane-North Fenton SH 963; North Fenton-Belden Pt. 1, SH 9036, North Fenton-Belden Pt. 2, SH 8427, FARC 55-16, Broome and Chenango Counties. CD 5/10, under LB.

▲ **NEW YORK**—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany,
N. Y.—Hendrickson Bros., Inc., 63 Central Ave., Valley Stream, N. Y. CA **$1,864,301.** wid'n 3.33 mi. Sect. Rte. 110, straighten 0.7 mi. Sect. Rte. 109 where Rtes. 109 and 110 intersect. building two new bridges, Suffolk Co.;
N. Y.—Depew Paving Co., Inc., 4955 Broadway, Depew, N. Y. CA **$839,504.** wid'n. reconstr. 4.14 mi. Rte. 20 from Lancaster's east corporation line and extending eastward to town line, Erie Co. CD 4/4, under LB.
John C. Peterson Constr. Corp., 958 Church St., Baldwin, N. Y. LB **$262,443** (5 bidders) bit. macad. pavement concrete curbs and storm water drainage New Hyde Park Rd., from Belmont Ave. to Hillside Ave., New Hyde Park, NEW YORK. Supervs., Nassau Co., Old County Court House, Mineola, N. Y. Bids June 1. CD 5/25.

▲ **Morrison-Knudsen Co., Inc.,** 122 E. 42 St., New York, N. Y. LB **$5,900,442.** (3 bidders) channel imprvs., Galop Island South Channel, St. Lawrence Co., St. Lawrence Contr. 15, NEW YORK. The Power Authority of the State of New York, 270 Broadway, New York 7, N. Y. Bids June 3. CD 5/18.

† **Somers Constr. Co.,** Balacynwyd, Pa., LB **$184,303** AAA Site bldgs., site imprvs., utilities, Gloucester Co., NEW JERSEY. U. S. Eng., 2635 Abbottsford Rd., Phila. Pa. Bids May 13.

† **R. M. Duval Constr. Co., Inc.,** 224 W. 4 St., New York 14, N. Y. CA **$502,800.** ammunition testing facilities, Picatinny Arsenal, DOVER, N. J. U. S. Eng., 111 E. 16 St., New York 3, N. Y. Bids May 4. CD 5/9, under LB.

Buck & Donohoe, Inc., 6901 Broad St., Newark, N. J., CA **$975,983,** Contr. 1, earth dam and impounding reservoir, near BRADFORD, PA. Bradford Water Auth., Bradford, Pa. Bids Apr. 18. CD 4/29, under LB.

Paul Payne, 512 Oakdale Dr., Grove City, Pa., CA **$116,337,** sewage plant, GROVE CITY, PA. Boro, Boro Hall, Grove City, Pa. Bids May 9. CD 4/27.

† **Williams Constr. Co.,** Middle River, Baltimore, Md. CA **$609,679.** east apron, southwest apron exten. and taxiway wid'n at Andrews Air Force Base, ENG-49-080-55-67-(58), ANDREWS AIR FORCE BASE, MD. U. S. Eng., First and Douglas Sts., N.W., Wash 25, D.C. Bids May 26, awarded May 31. CD 6/3, under LB.

▲† **James McHugh Constr. Co.,** 6449 S. South Park Ave., Chicago, Ill., CA, **$4,473,053.** Little Falls Dam Intake and Pumping Station, Montgomery Co., Maryland, CIVENG-49-080-55-10, WASH., D. C. U. S. Eng., First & Douglas Sts. N.W., Wash. 25, D. C. Bids May 19, awarded June 3. CD 5/23, under LB.

BUILDINGS—LB & CA

▲ **Saxwood Estates,** c/o Butterly & Green, Inc., 168-25 Hillside Ave., Jamacia, N. Y. Owner Builds. **$2,500,000.** 250 HOUSES on tract on Sunrise Hy. between Brentwood Rd. and Penatequet Ave., BAY SHORE, N. Y.

Bell Hill Estates, c/o Butterly & Green, Inc., 168-25 Hillside Ave., Jamacia, N. Y. Owner Builds. **$900,000.** 60 HOUSES on tract at 235 St. and Winchester Blvd., BELLEROSE, N. Y.

Montauk Industries, Inc., 17 Neptune Ave., Brooklyn, N. Y. Owner Builds. **$420,000.** 28 HOUSES, 2316-2384 Brigham St., BROOKLYN, N. Y. Morris Rothstein & Son, 186 Joralemon St., Brooklyn 2, N. Y., archts.

▲ **S. S. Silberblatt, Inc.,** 25 W. 45 St., New York, N. Y. CA **$3,037,500,** general constr. 6 seven-story steel, masonry APARTMENTS for Kensington Heights Proj., NYS-61C, Fillmore and Kensington Aves., BUFFALO, N. Y. Buffalo Municipal Housing Auth., City Hall, Buffalo 2, N. Y. Bids May 18, awarded June 2. CD 5/24, under LB.

East Meadow Park Homes, c/o Lane Realty, 107-40 Queens Blvd., Forest Hills, N. Y. Owner Builds. **$525,000.** 30 HOUSES on tract on west side of Newbridge Rd. south of Hempstead, EAST MEADOW, N. Y.

Morewood at Cold Spring Hills Homes, c/o Long Island Homes Realty, 168-12 Hillside Ave., Jamacia, N. Y. Owner Builds. **$400,000.** 20 HOUSES on tract on Jericho Turnpike and Hartman Hill Rd., HUNTINGTON, N. Y.

▲ **F. D. Rich Co., Inc.,** 322 Main St., Stamford, Conn. CA **$4,693,000.** general contract MEDICAL SURGICAL BLDG., Marcy State Hospital, MARCY, N. Y. Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, N. Y. CD 3/21, under LB;
Whiteney-Dierks Heating Corp., 100 Park Ave., Poughkeepsie, N. Y. CA **$608,363.** heating work (Marcy, N. Y.).

Tandy & Allen Constr Co., Inc., 280 Hackensack Ave., Hackensack, N. J. CA **$777,000.** general constr. STOREHOUSE and COLD STORAGE BLDG. Middletown State Homeopathic Hospital, MIDDLETOWN, N. Y. Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, N. Y. CD 4/4, under LB.

▲ **Bureau Contracts & Accounts,** The Governor Alfred E. Smith State Office Bldg., Albany, N. Y. rejected bids Mar. 24, Employees Home Bldg. No. 109, Manhattan State Hospital, Wards Island, NEW YORK, N. Y. LB **$1,463,000.** CD 3/31, under LB.

▲ **Rosewood Gardens Homes,** c/o Long Island Homes Realty, 168-12 Hillside Ave., Jamacia 32, N. Y. Owner Builds. **$1,250,000.** 82 HOUSES on tract on Boundary Ave. east of Hicksville Rd., NORTH MASSAPEQUA, N. Y.

Mount Pleasant Manor Homes, c/o Klein & Parker Realty Co., 1391 Northern Blvd., Roslyn, N. Y. Owner Builds. **$390,000.** 30 HOUSES on tract on Hauppage Rd. south of Jericho Turnpike, SMITHTOWN, N. Y.

(Continued on page 106)

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $44,000; other public works $73,000; industrial buildings $93,000; other buildings $344,000. Also Foreign projects of $100,000 and more in size of interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

New England	Middle West
Middle Atlantic	West of Mississippi
South	Far West

PROPOSED WORK

Water Supply	Public Buildings
Sewers, Waste Disposal	Mass Housing
Bridges	Commercial Buildings
Streets & Roads	Industrial Buildings
Earthwork, Waterways	Unclassified

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.
BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.

LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.

CD dates shown are of Construction Daily issue in which last previous report was published.

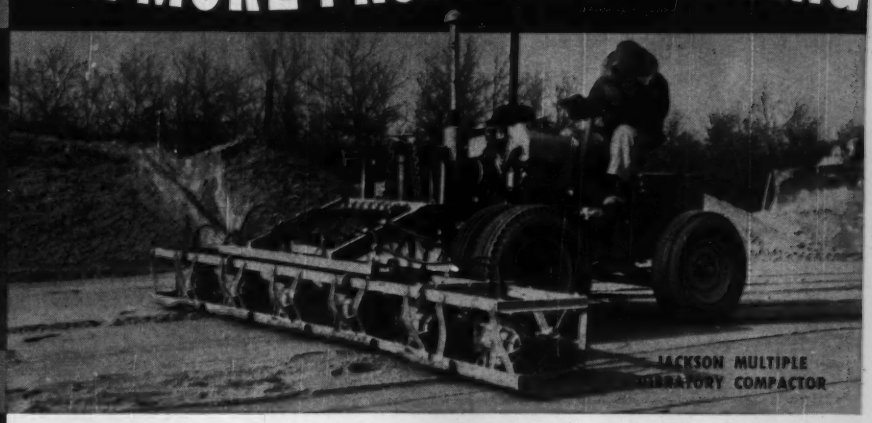
Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over.
ENR	Engineering News-Record
CD	Construction Daily

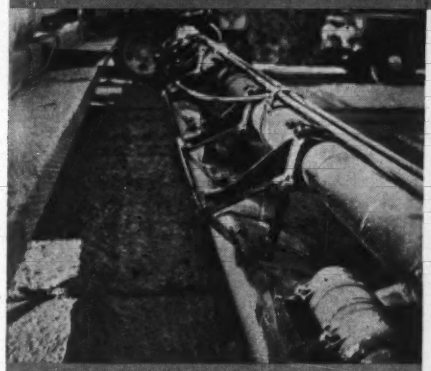
For additional reports see Construction Daily.

Everything FOR MORE PROFITABLE PAVING

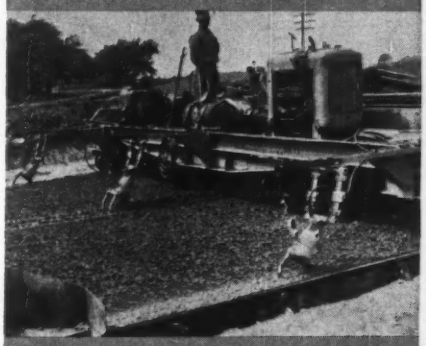
JACKSON PAVING TUBE (INTERNAL TYPE)



JACKSON MULTIPLE VIBRATORY COMPACTOR



JACKSON PAVING TUBE (EXTERNAL TYPE)



JACKSON SIDE FORM VIBRATOR

JACKSON VIBRATORY SCREED

MACADAM BASE COURSES, SUB-BASES, SOIL-CEMENT PAVING, FILLS

The JACKSON MULTIPLE COMPACTOR has now thoroughly demonstrated that it is by far the most advantageous equipment for achieving specified density in rock, slag, soilbound macadam, gravel and sand base courses. Required density in 12" base courses is usually achieved in one pass. Dry fines are vibrated to fill all voids with similar speed, and the machine is equally efficient on gravel sub-bases and granular soil-cement paving or base course construction. Standard width is 13', 3". Working speeds: up to 60 fpm. Reverse travel: 5½ mph.

CONCRETE AIRPORT & HIGHWAY PAVING

In very thick concrete slab construction, such as used in airport paving, the super powerful JACKSON PAVING TUBE, of the internal type, gives full width, full depth vibration of the concrete. Attached to a standard finisher or spreader, it saves time, cement; provides greater density and compressive strength. Controlled by finisher or spreader operator.

The surface type JACKSON PAVING TUBE does a perfect job of vibrating all mixes in depths used on highway projects. The owner of a JACKSON PAVING TUBE can quickly switch from internal to external vibration, or vice versa, and meet all specifications at minimum expense.

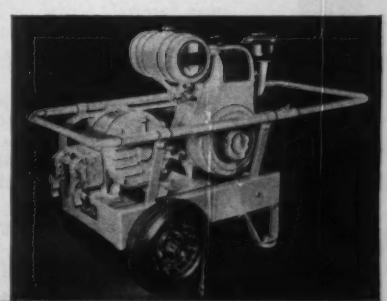
Use of a JACKSON Side Form Vibrator on standard finisher assures thorough consolidation and plasticity of concrete at side and center forms — with no "missed" spots. Labor savings effected quickly repay cost of equipment.

MUNICIPAL PAVING — BRIDGE DECKS, ETC.

For jobs of this type a JACKSON Vibratory Screed and Portable Power Plant is the most convenient, productive and inexpensive outfit you'll find anywhere. Strikes off to any crown, undercuts at curb and sideform, works right up to and around all obstructions. Two men easily handle it on all slabs up to 30 feet wide, and it may be rolled back for second passes on 4 rollers.

PORTABLE POWER:

Thoroughly reliable, time-proved plants in capacities of 1.5 to 7.5 KVA . . . equipped with permanent magnet generators requiring no maintenance or adjustment. They provide both single and 3-phase 120 V., 60 Cy. AC and may be used for lights as well as operating all JACKSON equipment.



FOR SALE OR RENT AT YOUR **JACKSON DISTRIBUTOR**

JACKSON VIBRATORS, INC. LUDINGTON MICHIGAN

VULCAN Pile Extractors Pull Toughest Piles

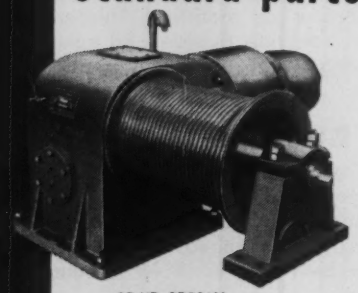
Specialized power for pulling the heaviest, longest, and most difficult steel, concrete, and wood piling. Simple, durable, efficient. Only one moving part . . . requires no assembly or adjustment . . . can't get out of order.

Write today for complete details and name of nearest dealer . . .

VULCAN *IRON WORKS*
327 NORTH BELL AVENUE
CHICAGO 12, ILLINOIS

Manufacturers of Pile Driving Hammers and Pile Extractors since 1852

BUILT TO YOUR needs from standard parts



15-HP SPECIAL PURPOSE HOIST
single fixed drum, worm gear drive

Meet your hoisting needs *precisely* at lowest possible cost. Call on our long experience in modifying and re-combining standard parts to meet specialized hoisting requirements.

Write for bulletins and catalogs

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FOR SAFE AND SPEEDY HOISTING

Heavy construction calls for heavy-duty blocks and MADESCO blocks combine the performance features developed through 30 years of specialized engineering for the construction field. Heavy steel shells and fittings, heavy iron or steel graphite-bronze, self lubricating sheaves are grooved to give you the maximum return for your rope investment. Sheaves equipped with bronze or anti-friction bearings for easy operation and long service. Our special service departments will help you with their recommendations. Write for our catalog or consult your equipment dealer who can supply you with MADESCO products.

MADESCO BLOCKS

MADESCO TACKLE BLOCK CO.
EASTON, PA.

Engineered to Serve Your Special Service Needs

(Continued from page 104)

R. A. Prendergast & Son, 3010 Sunset Ave., Atlantic City, N. J., CA, $350,000. OPERATIONS OFFICE, EGG HARBOR, N. J. Atlantic City Electric Co., Kentucky and Pacific Aves., Atlantic City, N. J. George Swinton, City Hall, Egg Harbor, N. J., city engr. CD 3/8.

DeSapio Brothers, Baptistown, N. J., CA, $661,500 general contract Central Hunterdon Regional HIGH SCHOOL, Route 69, FLEMINGTON, N. J. Central Hunterdon Regional School Dist., Route 69, Flemington, N. J. Awarded June 2.

Farrington Park Homes, c/o Frederick Harsen, archt., Summit St. and East Railroad Ave., Tenafly, N. J., Owner Builds, $750,000. 51 HOUSES on tract near Boy Scouts of American Headquarters bldg., NORTH BRUNSWICK, N. J.

▲ Seaview Harbor, Inc., 7917 Ogontz Ave., Phila., Pa., Separate Contracts, $1,260,000. RESIDENTIAL DEVELOPMENT, Longport Blvd., SOMERS POINT, N. J.

▲ Vikki Realty Co., Groveville, N. J., Separate Contracts, $4,000,000. RESIDENTIAL DEVELOPMENT, TRENTON, N. J. Erwin Gerber, 1180 Raymond Blvd., Newark, N. J., archt.

Joseph L. Muscarelle Ltd., 42 First St., Hackensack, N. J. CA, $600,000. OFFICE and LABORATORY, on tract at intersection of Garden State Parkway and Middlesex Essex Turnpike, WOODBRIDGE TWP., N. J. Minerals & Chemicals Corp., c/o Chapman, Evans & Delehanty, archts., 50 Broadway, New York 4, N. Y. (Correction —name of owner). CD 6/3, under CA.

George K. Heebner, 1231 Vine St., Phila., Pa., CA, $750,000. 1 story, brick, block, steel MFG. PLANT and OFFICES, FORT WASHINGTON, PA. Columbia Steel Equipment Co., 248 W. Wingohocking Ave., Phila., Pa. Rosengarten & Kraemer, 10 S. 18 St., Phila., Pa., engrs.-archts.

L-D Bldg. Co., Latrobe, Pa., CA, $329,840 1 story, 200x300 ft., 50x60 ft., block, tile, steel WAREHOUSE, near GREENSBURG, PA. Charley Brothers, 568 W. Otterman St., Greensburg, Pa. Sorber & Hoone, First Natl. Bank, Greensburg, Pa., archts.

▲ Warner Constr. Co., Lafayette Hills, Pa. Separate Contracts., $1,848,000, RESIDENTIAL DEVELOPMENT, Woodside Estates, LAFAYETTE HILLS, PA.

Navarro Corp., 6219 Broad St., Pittsburgh, Pa., CA, $380,000. 4 story, 57x127 ft., steel, brick, block, stone SCHOOL and CONVENT, MILLVALE, PA. St. Anthony's Roman Catholic Congregation, Millvale, 608 Farragut St., Millvale, Pa. Bids Apr. 28.

Branna Constr. Co., Farmers Bank Bldg., Pittsburgh, Pa., CA, $842,000. 1 and 2 story, steel frame, irregular, brick, block John Minadio Elementary SCHOOL, PITTSBURGH, AP. Bd. Educ., Forbes and Bellefield Sts., Pittsburgh, Pa. CD 9/14.

† Dick Corp., Route 51, Large, Pa., CA, $800,000. 1 and 2 story, 40x160 ft., 19x47 ft., steel, brick, block Naval and Marine Corp Reserve TRAINING CENTER, PITTSBURGH, PA. Dpt. P. Wks., Navy Dpt., Naval Base, Phila., Pa. Mitchell & Richey, 430 Alcoa Bldg., Pittsburgh, Pa., archts. CD 10/14.

▲ Meadowbrook Estates, Inc., Washington Lane and Stenton Ave., Phila., Pa., Separate Contracts, $3,825,000, 153-unit RESIDENTIAL DEVELOPMENT, Washington Lane, MEADOWBROOK, PA. Henry S. Berg, 1411 Walnut St., Phila., Pa., archt., H. H. Metz, Lansdale, Pa., engr.

▲ Thomas B. Steckham, Inc., 12 S. Penna Ave., Morrisville, Pa., Separate Contracts, $3,500,000, RESIDENTIAL DEVELOPMENT, Makefield Rd., etc., MORRISVILLE, PA. Theodore R. Palmer, Morrisville, Pa., archt.

Groomes Constr. Co., Cheswick Pa., LB $500,000, 3 story, bsmnt., steel frame, brick, block WING addn., OAKMONT, PA., Presbyterian Home for Aged, Oakmont, Pa. Press C. Dowler, Century Bldg., Pittsburgh, Pa., archt.

John McShain, 17 and Spring Garden Sts., Phila., Pa., CA, $500,000, CHURCH, PHILA., PA. St. Bartholomew's Roman Catholic Church, 5600 Jackson St., Phila., Pa. CD 5/6.

▲ Robert E. Lamb & Son, 3429 W. Indiana Ave., Phila., Pa., CA, $1,500,000, one 400x800 ft., and two 140x200 ft. WAREHOUSES, POTTSTOWN, PA. Firestone Tire & Rubber Co., Pottstown, Pa. Bids May 16. CD 5/17.

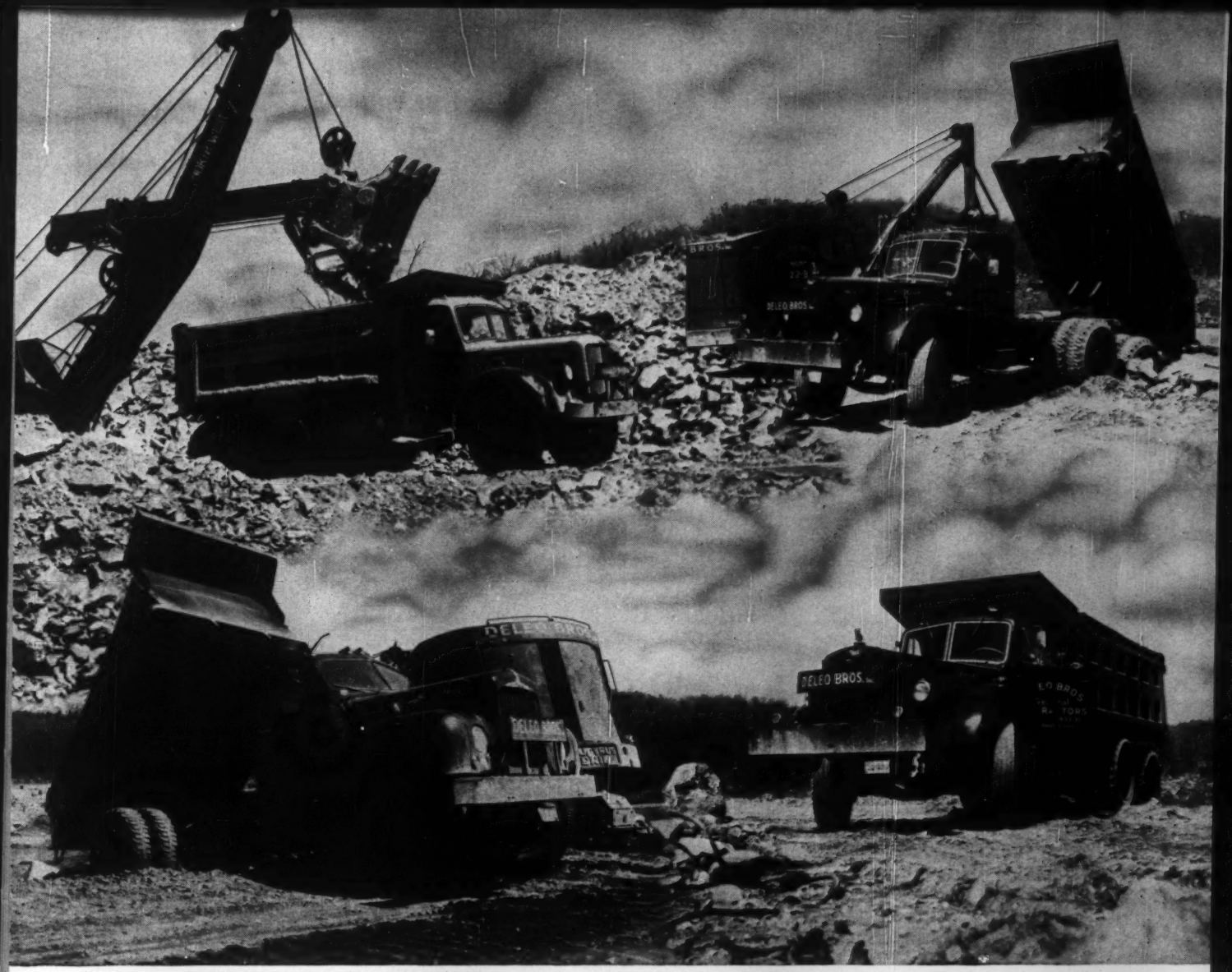
Matthew Lievo & Sons, Inc., Lawrence Savings & Trust Bldg., New Castle, Pa., CA, $627,000. Grade and High SCHOOL, for Wattsburg Area Joint School District, WATTSBURG, PA. State Public School Bldg. Auth., 101 S. 25 St., Harrisburg, Pa. Bids Apr. 28. CD 5/3, under LB.

Wesley-Anderson, Inc., 613 S. Chester Rd., Swarthmore, Pa., Separate Contracts, $845,000. RESIDENTIAL DEVELOPMENT, Beaver Valley Rd., WEST CHESTER, Pa.

▲† William E. Cramer, Jr., Co., 2601 Connecticut Ave. N. W., Wash., D. C. LB $2,384,000. GYMNASIUM field area and parking areas, U. S. Naval Academy, NOY 842711, Spec. 44177, ANNAPOLIS, MD., Bureau Yards & Docks, Dpt. Navy, Annapolis, Md. Harbeson Hough Livingston & Larson, Architects Bldg., Phila., Pa., and Von Storch Evans & Scandall & Burkavage, 117 S. 17 St., Phila., Pa., archts. Severud Elstad Krueger, 415 Lexington Ave., New York, N. Y. Bids May 25. CD 4/27.

▲ Aldo Gibellino & Son, 513 Lennos Rd., Wilmington, Del., Separate Contracts, $7,000,000, RESIDENTIAL DEVELOPMENT, Wilmington Manor, NEW CASTLE, DEL.

(Continued on page 109)



MIANUS RIVER DAM and Reservoir, Greenwich, Fairfield Co., Conn., for Greenwich Water Co. Merritt, Chapman & Scott Corp., *Contractors;* American Water Works Service Co. Inc., Phila., Pa., *Consulting Engineers;* DeLeo Bros., Inc., Stamford, Conn., *Excavation Sub-contractors.*

On Mianus River Dam, Greenwich, Conn.

IT'S MACKS 100%

This project, which is being built to insure an adequate water supply for Greenwich, Conn., Port Chester and Rye, N. Y., involves moving 375,000 cubic yards of earth and rock fill.

The dam itself will be 1,200 ft. long, 77 ft. high, 430 ft. across at the base and 20 ft. across at the top. As Mr. Sam DeLeo of DeLeo Bros., Stamford, Conn. excavation contractors, puts it, "We've got a real earth-moving job here, all right.

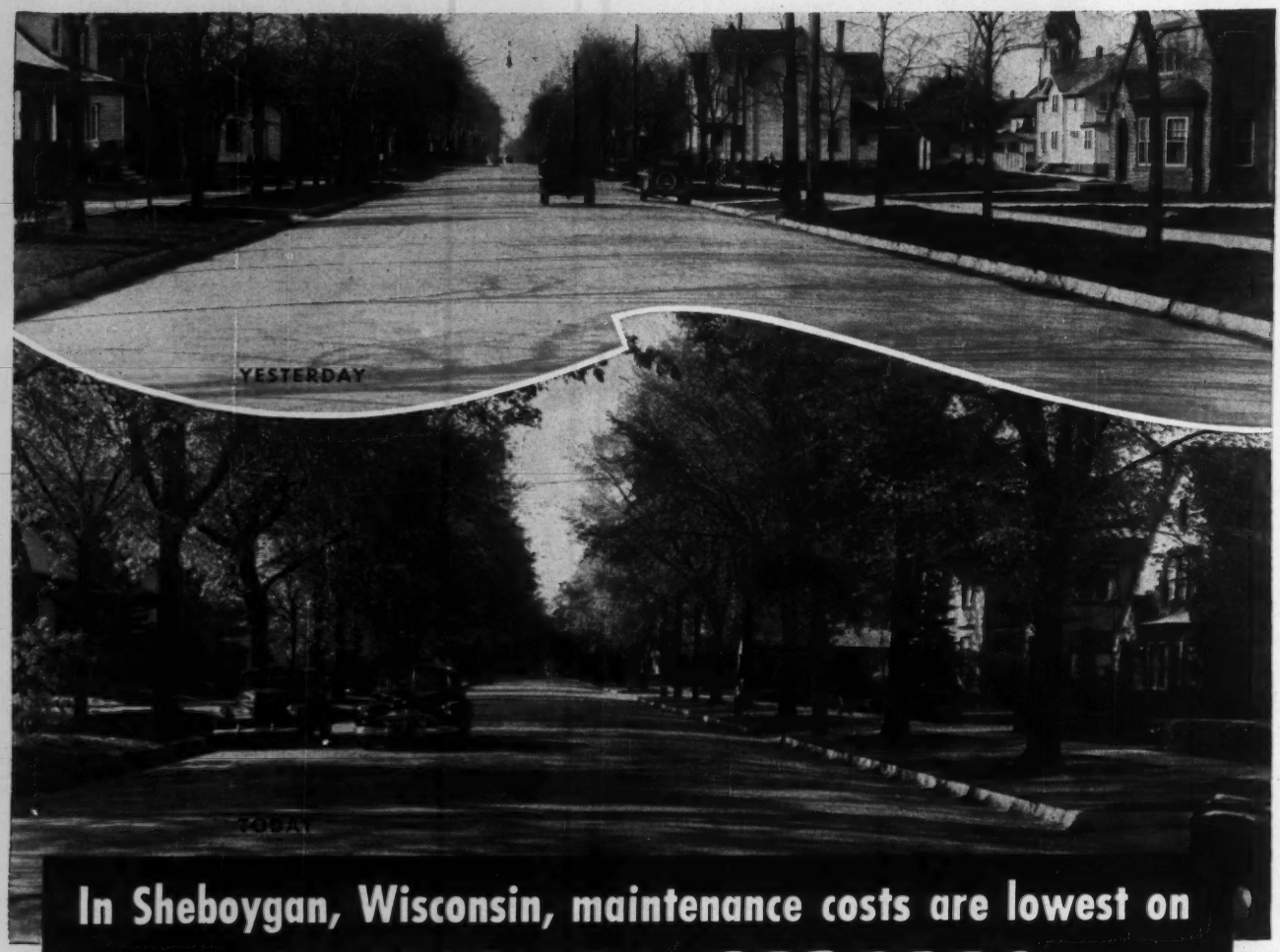
"To do the best job, and to be sure we fulfill our contract on schedule, we're relying on Macks.

"Ours is a Mack fleet, exclusively. Moreover, the additional trucks we've hired to increase our hauling capacity on this job are Macks. In fact, with us, it's Macks all the way."

DeLeo Bros., like so many heavy construction contractors, have used Macks for years. They know that Macks keep cycle time down over the toughest terrain. Fast, uninterrupted schedules are assured, thanks to Mack's Balanced Bogie and exclusive Power Divider . . . the combination that provides maximum flexibility, even tire loading, uniform braking and positive traction in soft or slippery going.

In addition, the fact that Mack makes more of its own components than any other manufacturer means that Macks are built better from the axle up. They're stronger, require less maintenance, assure longer service life. As Mr. DeLeo says: "It pays to invest in Macks."

MACK TRUCKS Empire State Building, New York 1, N. Y. 3130



In Sheboygan, Wisconsin, maintenance costs are lowest on CONCRETE STREETS

Sheboygan, Wis., paved its first street with concrete in 1911. Today two-thirds of the total street mileage is concrete.

Writes Robert Fleischer, Director of Public Works, "We in Sheboygan know a great deal about concrete pavements. We've kept accurate records so we know that concrete pavements cost less for upkeep than any other type."

Latest available Sheboygan street maintenance records, spanning a 19-year period, show that concrete pavements cost an average of $103.25 per mile per year to maintain. The other two principal types of pavement average $565.86 and $809.25 per mile per year to maintain. That's 5.5 and 7.8 times more than for concrete streets!

Sheboygan's experience with *low-maintenance-cost* concrete streets is shared by cities from coast to coast. Yet low maintenance is only one concrete pavement economy that pleases motorists and taxpayers. Concrete usually costs less to build than any other pavement designed for the same traffic and it serves longer. These three factors, moderate first cost, low upkeep and long life, result in ***low-annual-cost*** pavement.

For more information about ***low-annual-cost*** pavement, write for free booklet, "*Design of Concrete Pavements for Municipal Streets.*" Distributed only in the United States and Canada.

●

Upper photo, Sixth Street, more than a quarter of a century ago. Lower photo, Sixth Street today from the same location.

PORTLAND CEMENT ASSOCIATION

DEPT. A6c-17, 33 WEST GRAND AVENUE, CHICAGO 10, ILLINOIS

A national organization to improve and extend the uses of portland cement and concrete through scientific research and engineering field work

(Continued from page 106)

SOUTH

HEAVY CONSTRUCTION—BA

† **Va., Oceana**—SHIPPING and RECEIVING FACILITIES—BA 6/21—Dist. P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk, shipping and receiving facilities, U. S. Naval Air Station, NOY 85182, Spec. 41846 Rev. Plans deposit $10. CD 11/24/53.

† **Va., Oceana**—AIR TRAFFIC CONTROL CENTER—BA 6/21—Dist. P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk, radar air traffic control center Naval Air Station, NOY 85869, Spec. 43055. Plans deposit $10.

† **West Virginia**—BA About 6/22—U. S. Eng., P. O. Box 2127, Huntington, Zone 18, remedial work at 16 St., local protection project, Huntington, Cabell Co.

† **Ky., Louisville**—BA 6/23—U. S. Eng., P.O. Box 59, Louisville, Zone 1, sanitary sewer Louisville Medical Depot, ENG-14-029-55-80. CD 9/9/52.

† **West Virginia**—BA About 6/27—U. S. Eng., P. O. Box 2127, Huntington, Zone 18, clearing and straightening Cherry River Channel at Richwood and Fenwick, Nicholas Co.

† **S. C., Beaufort**—UTILITIES, etc.—BA 6/28—Dist. P. Wks. Office, Bldg. 12, U. S. Naval Base, Charleston, utilities and paving, NOY 85634, Spec. 45189. Plans deposit $50; supply storage bldg., welfare and recreation bldgs. (Units 1 & 2); inflammable storage bldg. and squadron admin. bldg., NOY 85629, Spec. 45184, U. S. Marine Corps Auxiliary Landing Field. Plans deposit $50. CD 6/25/52.

Va., Richmond—BA 6/28—Office of J. W. Huffman, city purch. agt., Mosque Bldg., Laurel and Main Sts., part of sewage disposal proj. entitled "Division F-Gambles Mill Rd. Trunk Sewer" comprises of approx. 5,100 lin. ft. 30 in. rein.-con. pipe sewer complete with manholes, connecting sewers, house connections, metering station, etc., from site of Gambles Mill Road Pumping Station located on south side of River Rd. at Gambles Mill Rd. northward in right-of-way adjacent to west line of Gambles Mill Rd. to location near Roselawn Rd., and right-of-way near University of Richmond's Power Plant and along northeast edge of Westhampton Lake situated on campus of University of Richmond to location in College Rd. near Lakewood Ave. in city of Richmond and partly in Henrico Co. Greeley & Hansen, 220 S. State St., Chicago 4, Ill., engrs.; adv. ENR 6/16. CD 6/13/51.

▲ **W. Va., Wheeling**—BA 7/19—City, Sanitary Bd., Bd. Trade Bldg., sewage disposal proj. Contr. D 1, Ohio River Interceptor north; Contr. F-1 Wheeling Creek Interceptor Middle Section; Contr. F-2 Theda Place, Long Run Connecting Sewer, Long Run Relief Sewer, Greggsville Connecting Sewer, Long Run New Sewer, Waddles Run, Bebel St., Alfred St., Bowman St. and Edgewood St. Sewers; Contr. G-1 Wheeling Creek Interceptor — Upper section and Triadelphia High School, Whitaker Lane, Springdale and Hillsdale Connecting Sewers; Contr. G-2 Little Wheeling Creek Interceptor and Overbrook and Burkham Court Sewers. Plans deposit $25, Greeley & Hansen, 220 S. State St., Chicago 4, Ill., engrs. CD 5/5.

BUILDINGS—BA

† **Va., Vint Hill Farms Station**—POST EXCHANGE—BA About 6/28—U. S. Eng., First and Douglas Sts. N. W. Wash. 25, D. C., 1 story, 52x120 ft., main post exchange bldg., Vint Hill Farms Station, ENG-49-080-55-83-(74).

† **Fla., Panama City**—LABORATORY FACILITIES—BA 6/29—Dist. P. Wks. Office, Bldg. No. 12, U. S. Naval Base, Charleston, S. C., laboratory facilities building, Naval Mine Countermeasures Station, NOY 85617, Spec. 45176, Plans deposit $30.

Ga., Hinesville—SCHOOL—BA 6/30—Georgia State School Bldg. Auth., 41 Exchange Pl. S. E., Atlanta, Riceboro Elementary School; Liberty County Elementary & High School, Carl E. Helfrich & Daniel L. Grantham, 21 E. York St., Savannah, archts.; Bradwell Institute, Percy H. Perkins, 1368 W. Peachtree St., Atlanta, archt.; Hines Shaw Center School addn., Abreu & Robeson, 141 Walnut St. N. W. Atlanta, archts. Plans deposit $50 each.

HEAVY CONSTRUCTION—LB & CA

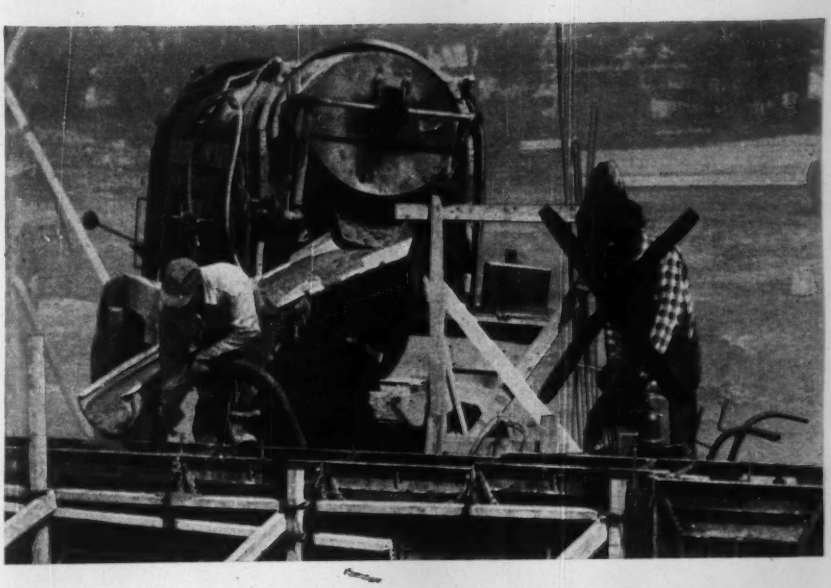
† **Blythe Bros. Co., Inc.**, 2911 Hutchinson Ave., Charlotte, N. C. CA $578,975. piers and ramps Intracoastal Waterway, NOY 88360, Spec. 45337, CAMP LEJEUNE, N. C. P. Wks. Office, Camp Lejeune, N. C.

▲ **FLORIDA**—State Road Dpt., Tallahassee, Fla.—**R. H. Blackwell**, Box 4096, Jacksonville 7, Fla., LB, $277,351. 2 bridges, maint. traffic removing bridge 0.079 mi. State Rd. 15, at St. Mary's River, F.-2761-(1), Job 7403-204 Nassau Co.;

Fla.—**Powell Bros., Inc.**, Box 281, Fort Lauderdale, Fla., LB, $730,673, maint. traffic, removal existing structures, embankment, rock base with surf. b. conc., bridge, bridge items, 0.447 mi. State Road 810, Bridge and approaches over Intracoastal Waterway between Kester Blvd. in Deerfield Beach and SR. Ala., Job 8612-175, Broward Co. Bids May 31. CD 5/12.

▲ **FLORIDA**—State Road Dpt., Tallahassee, Fla.—**H. E. Wolfe Constr. Co.**, St. Augustine, Fla., LB, $683,270. maint. traffic, grading roadway, rock base with b. conc. storm sewers, wind. bridge, 3.293 mi. State Rd. No. 5, Fed. Aid Proj. U-003-2 (4), Job No. 8703-209, Dade Co.;

Fla.—**Duval Eng. & Constr. Co.**, Box 1588, Jacksonville, Fla., LB, $257,572. maint. traffic, grading roadway, rock base with b. conc., drainage structures 0.804 mi. State Road No. 10, Fed. Aid. Proj. F 006-5 (1), Job 7201-207, Duval Co.;



NEW MASTER "1-MAN" VIBRATOR CUTS VIBRATING COSTS IN HALF

Only 25 lbs. Easy to handle.

It weighs 25 pounds! It's all in one piece! It plugs into any regular 115 Volt AC or DC electric line . . . and with no heavy engine or motor to drag around, one man handles it easily.

The motor is sealed in the vibrating head, so there's no flexible shaft to get out of whack; no oiling or greasing problems; no kinking troubles.

No field maintenance is necessary: when motor head needs attention, snap it off and snap on a spare.

The vibration actually penetrates farther and leaves fewer voids in the concrete than old-style vibrators.

The price is *low*. The design has eliminated so much cost, and no special power source is required, but the big saving comes in use. Write for folder or ask your Master distributor for a free demonstration. You'll see exactly how the Master "1-Man" can cut your vibrating costs *at least* 50%.

MASTER VIBRATOR COMPANY
157 Stanley Ave., Dayton 1, Ohio

MASTER

PHOENIX BRIDGE COMPANY

Engineers—Fabricators
Erectors
Structural Steel
BRIDGES and BUILDINGS

General Office and Shops
PHOENIXVILLE, PA.

Subsidiary—Barium Steel Corporation

TEST BORINGS

for

- COAL
- MINERALS
- DAMS & BRIDGES
- BUILDINGS

"We look into the Earth"

PENNSYLVANIA Drilling CO.

DRILLING CONTRACTORS AND MFRS.
PITTSBURGH 20, PA.

Fla.—**Coffee Constr. Co.**, Eastman, Ga., LB $419,928. medium excav., limerock stab. base with bit., small drainage structure, 3 culverts one bridge 15.862 mi. State Road S-250, Fed. Aid Proj. FH-17-B, Job 2756-275, Baker Co.;

Fla.—**A. F. Rich Co.**, Box 149, Tallahassee, Fla., LB $330,800. rock base with bit., b. conc. drainage structures 7.972 mi. State Road 57, Fed. Aid Proj. F-032-1 (2), Job 5403-201 Jefferson Co.;

Fla.—**W. L. Cobb Constr. Co.**, Box 977, Tampa, Fla., LB $324,796, maint. traffic, light excav., roadbed, rock base with bit. surf. 2 bridges, culverts, small drainage structures 8.196 mi. State Roads S-39 and S-672, Fed. Aid Proj. S-226 (4) and S-400 (1), Jobs 1053-250 and 1054-250 Hillsborough Co.;

Fla.—**J. D. Manly Constr. Co.**, Ocala, Fla., LB, $96,890 rock base, grading roadway, bit. surf. 8.435 mi. State Road S-308, Fed. Aid Proj. S-416 (1) Job 7660-250, Putnam Co.;

Fla.—**Industrial Constr. Co.**, Box 2797, Jacksonville, Fla., LB, $91,353, base, surf. 4.283 mi. State Road S-231-A Job 3958-175, Union Co.;

Fla.—**Ronlee Inc., H. L. Mills Constr. Co., and Florida-Alabama Constr. Co.**, 3907 N.W. 27 Ave., Miami, Fla., LB $193,781 reworking, rock base, surf., bridge 5.618 mi. State Road S-941, Mob 9055-151, Monroe Co. Bids May 31. CD 5/18.

FLORIDA—State Road Dpt., Tallahassee,

Tucker & Alligood and Branch Constr. Co., 542 W. Madison St., Tallahassee, Fla., LB, $302,472 base, bit. surf., drainage structures, culverts, bridges, etc. 13.42 mi. State Road S-379, Fed. Aid Proj. FH-19-A, Liberty Co. Bids May 31. CD 5/20.

ALABAMA—State Hy. Dpt., Montgomery,

Ala.—**Laidlaw Contg. Co.**, Wolf Ridge Rd., Mobile, Ala., LB $281,795, bridge, approaches 0.799 mi. Fowl River, Ala. 163, Mobile Co.; LB $166,662. bridge, approaches 1.059 mi. Heron Bay cutoff Ala. 163, Mobile Co.;

Ala.—**G. W. Norrell Contg. Co.**, Georgiana, Ala., LB, $78,575, bridge, approaches on Big Creek on Cottonwood to U. S. 31 road, Houston Co. Bids May 27. CD 5/12.

▲ ALABAMA—State Hy. Dpt., Montgomery,

Ala.—**A. E. Burgess Contg. Co.**, 3700 10 Ave. N., Birmingham, Ala., LB, $285,503. bit. 2.664 mi. from Ala. 5 toward U. S. 78 near Jasper, Walker Co.; LB $161,754. bit. 3.988 mi. from Hayden to Blount Springs, Blount Co.;

Ala.—**Geo. A. Dozier**, 4144 Wares Ferry Rd., Montgomery, Ala., LB, $472,621, base and bit. 7.617 mi. from Brompton toward Eden, St. Clair Co.; LB $131,756, base and bit. 11.012 mi. Ala. 37 southwest toward Level Rd., thence east to Ocre, Randolph Co.;

Ala.—**Newell Bros. Constr. Co.**, Hope Hull, Ala., LB, $78,664, grading, drainage, bridges 5.339 mi. Sprott-Maplesville Rd., Chilton Co.;

Ala.—**Moss-Thornton Co.**, Leeds, Ala., LB, $163,363 bit. 6.775 mi. from Ala. 69 south to Sipsye, Walker Co.;

Ala.—**O'Dell Constr. Co.**, Box 1582, Montgomery, Ala., LB $282,267, bit. 11.69 mi. from Ala. 17 north of Millport to Miss. State Line, Lamar Co. Bids May 27. CD 5/13.

† **Jahncke Service, Inc.**, 814 Howard Ave., New Orleans, La. LB $525,600. Lake Pontchartrain levee enlargement involving 900,000 cu. yd. levee, Jefferson Parish, Inv. 55-223, LOUISIANA. U. S. Eng., foot of Prytania St., New Orleans, La. Bids May 27. CD 6/26/46.

▲ **City**, Henderson, Ky. rejected bids Apr. 29, water plant addn., alterations, water mains, storm and sanitary sewers, elevated tank, HENDERSON, KY. Est. $1,679,326. Will re-advertise. CD 5/5, under LB.

BUILDINGS—LB & CA

▲ **J. A. Jones Constr. Co.**, 209 W. 4 St., Charlotte, N. C., CA Total est. $20,000,000. 400,000 sq. ft. District TRANSFORMER PLANT, HICKORY, N. C. General Electric Co., River Rd., Schenectady, N. Y. Bids May 10. CD 5/6.

J. A. Jones Constr. Co., 133 Ellis St. N.E., Atlanta, Ga., LB $497,835. TRAFFIC COURT BLDG., ATLANTA, GA. City, City Hall, Atlanta, Ga. Bids May 30. CD 5/13.

▲ **Taylor Constr. Co.**, 2875 N.W. 42 Ave., Miami, Fla., CA, $6,000,000. 271-unit APARTMENT DEVELOPMENT on Coconut Row, PALM BEACH, FLA. Joseph Mass, c/o John H. Graham & Assocs., 2430 Pennsylvania Ave. N.W., Wash., D. C. CD 2/7.

Caldwell & McCann, Box 477, Baton Rouge, La. LB $882,923. large new part 1 and 2 story, steel, concrete Westdale Junior High SCHOOL, BATON ROUGE, LA. East Baton Rouge Parish School Bd., Baton Rouge, La. Bids May 31. CD 5/20.

Southern Builders, Inc., 495 W. 61 St., Shreveport, La. LB $861,000, est. $819,000. Negro elementary SCHOOL, Holzman and Patzman St., SHREVEPORT, LA. Caddo Parish School Bd., Shreveport, La. Bids May 31. CD 5/20.

▲ **Struck Constr. Co.**, 147 N. Clay St., Louisville, Ky. LB $1,313,500. LIBRARY, LOUISVILLE, KY. University of Louisville, 2301 S. Third St., Louisville, Ky. Bids June 2. CD 5/10.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

Wis., Cudahy—BA 7/1—City, City Hall, 3,590 ft. 21- to 60-in. storm sewers in S. Lake Dr. $275,000. Plans deposit $10. J. Tiry, city engr. CD 4/27.

BUILDINGS—BA

Mich., Detroit—STATE HALL—BA 6/22—At office Suren Pilafian, archt., 153 E. Elizabeth St., 3 story, penthouse state hall addn. at Wayne University for City of Detroit, Bd. Educ., 1354 Broadway, Detroit, Mich. CD 11/17/53.

Mich., East Grand Rapids—SCHOOL—BA 6/27—City, Louis F. Battle, clk., constr. Junior High School, Breton Rd. and Lake Drive. $850,000. J. & G. Daverman, 924 Grandville St. S.W., Grand Rapids, archts. Perkins & Will, 309 W. Jackson St., Chicago, Ill., engrs. CD 3/2/54.

▲ **Mich., Muskegon** — HOSPITAL — BA 6/28 — Hackley Hospital, Paul F. Bergmann, secy., of the Bd., 101 E. Forest Ave., 2 story, bsmnt., 150x150 ft., rein.-con. hospital addn. $1,500,000. Plans deposit $50, refundable. Schmidt, Garden & Erikson, 104 S. Michigan Ave., Chicago 3, Ill., archts. CD 11/23.

O., Dayton—SCHOOL—BA 6/30—Bd. Educ., 348 W. First St., 2 story U. S. Grant School addn., alterations, Arcadia Blvd. and Mereline Ave. $500,000. Plans deposit $20, George T. Neuffer, 25 S. Main Bldg., Dayton, archt. CD 5/10.

▲ **Ill., Centerville Twp. (East St. Louis, P. O.)**—HOSPITAL—BA About 9/1—Centreville Township Hospital Bd., Francis Touchette, chn., City Hall, 4831 Bond Ave., Centreville Twp., East St. Louis, 3 story, bsmnt., 56x320 ft., and 56x80 ft., 125-bed brick, steel, rein.-con. hospital. $2,500,000. Joseph D. Standish, 1101 Spivey Bldg., 417 Missouri Ave., East St. Louis, archt. Charles B. Spencer, 40 Chemical Bldg., 721 Olive St., St. Louis 1, Mo., assoc. archt. CD 4/12, under LB.

Ill., Arlington Heights—DIAL EXCHANGE—Bids Asked —Illinois Bell Telephone Co., 206 W. Washington St., Chicago, Zone 6, 2 story, bsmnt., dial exchange. $375,000. Holabird, Root & Burgee, 180 N. Wabash St., Chicago, Zone 1, archts.

BUILDINGS—SLC

Ill., Aurora—SHOPPING CENTER—Northgate Shopping Centre, North Lake St., soon lets contract shopping center. Gray Laz & Mall, 909 S. Batavia St., Geneva, archts.

Ill., Blue Island—DIAL EXCHANGE—Illinois Bell Telephone Co., 206 W. Washington St., Chicago, Zone 6, soon lets contract dial exchange, $350,000. Holabird, Root & Burgee, 180 N. Wabash St., Chicago, Zone 1, archts.

Mich., Grand Rapids—LABORATORY, etc.—Electric Sorting Machine Co., 410 44 St. S.W., soon lets contract laboratory and office, Giffels & Vallet, Inc., 1000 Marquette Bldg., Detroit, archt. CD 4/14.

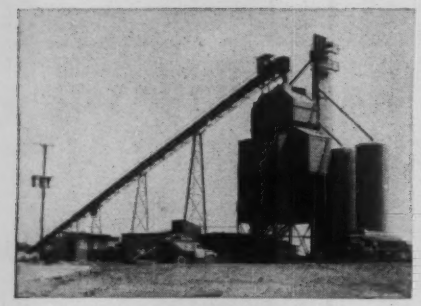
HEAVY CONSTRUCTION—LB & CA

† **W. H. Ringwald & Sons Co.**, Chillicothe, O., LB $796,678, est. $748,443, paving, incl. 17,560 sq. yd. alert taxiway with concrete 11 in. thick, 12,600 sq. yd. primary taxiway 17 in. thick and 4,155 sq. yd. access apron, Lockbourne Air Force Base for Air Defense Command, COLUMBUS, O. U. S. Eng., 237 Fourth Ave., Huntington 18, W. Va. Bids May 26. CD 5/4.

▲ **INDIANA**—Indiana Toll Road Comn., 309 W. Washington St., Indianapolis, Zone 4,

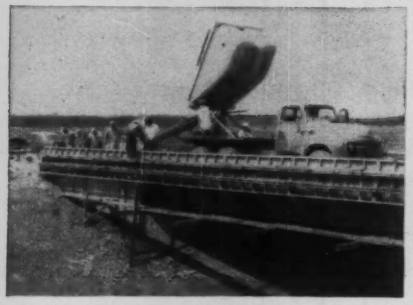
Louis Garavaglia Constr. Co., Center Line, Mich. and **Kenny Constr. Co.**, Oakton St., Skokie, Ill., LB, $7,250,341. Contract C-5, grading, drainage, struc-

(Continued on page 112)



1. Central plant produces 3 types of mixes

2. Dumpcretes haul 4 yds. to paving site



3. Same truck with different mix for bridge

4. Access road widening gets this 4 yd. load

Dumpcretes haul concrete for paving, widening, bridges on Ohio Turnpike

D. W. Winkelman's simplified concrete operation on the Ohio Turnpike has created a stir of interest among paving contractors. With central-mixing and Dumpcretes he produced and hauled concrete for paving a 10-mile section . . . for widening access roads . . . and for bridges, retaining walls and other structures. This method allowed pours on many of these jobs to be made at the same time with concrete produced by a single plant . . . and eliminated pavers, water trucks and the men to run them. The same method cuts costs on small jobs, too. Write for job reports.

MAXON DUMPCRETE

Fastest from plant to pour

Send Me ☐ Concrete for Paving and Structures on Ohio Turnpike ☐ Job Reports on Low Cost Non-Agitating Hauling of Concrete

Name _____

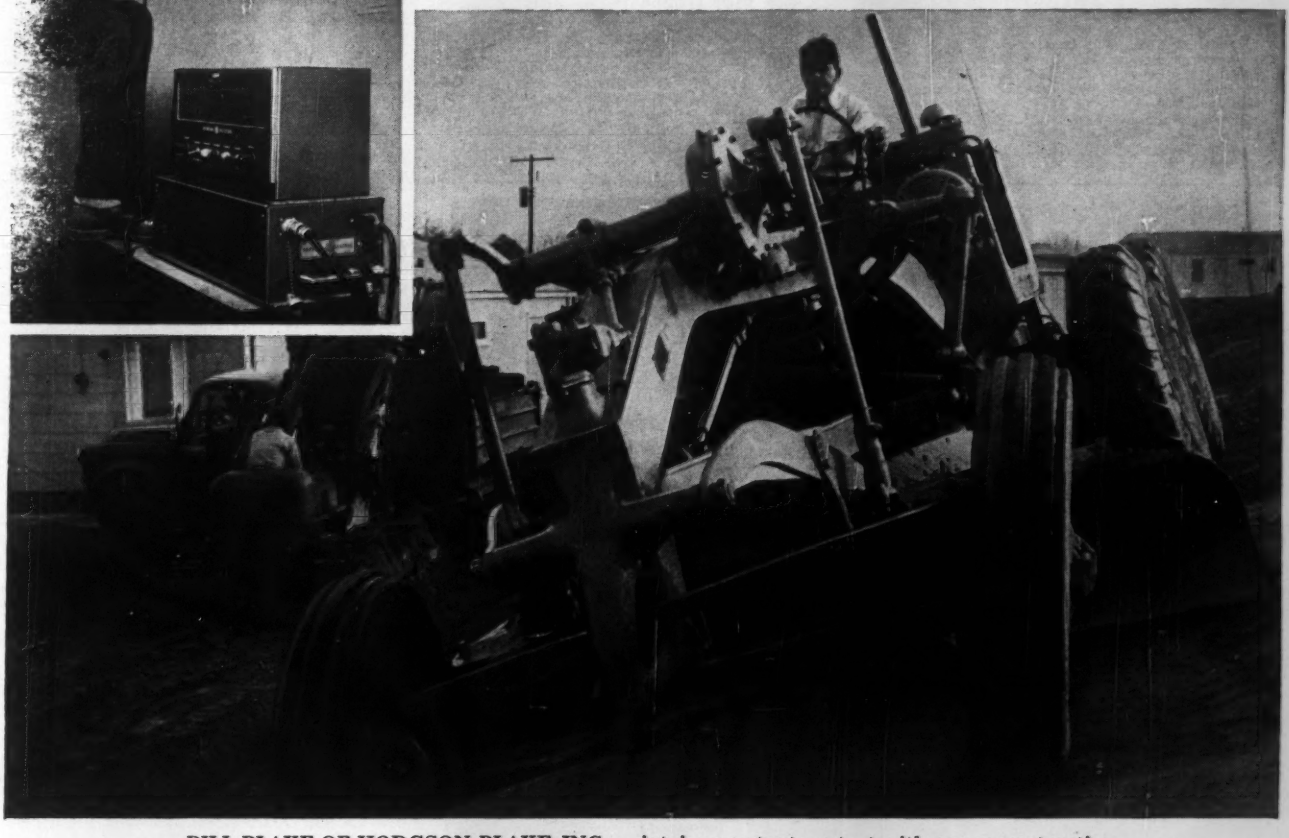
Firm _____

Street _____

City _____

Manufacturing Division, Maxon Construction Co., Inc., 709 Talbott Building, Dayton 2, Ohio

CONSTRUCTION BOSS CUTS TIME AND TRAVEL AT LEAST 50% WITH 2-WAY RADIO



BILL BLAKE OF HODGSON-BLAKE, INC. maintains constant contact with every construction job, from his office—or his car—using General Electric 2-way radio.

WITH 2-WAY RADIO installed on his grader, foreman Carl Richardson supervises work crews while operating the grader, yet is never out of touch with manager Blake and the office.

"I drive less than half the miles, yet have far greater control over all my crews, all over the *county*, since installing our General Electric 2-way radio system," reports Bill Blake, Vice President of Hodgson-Blake, Inc. of Montgomery, Alabama. "With radio in my car, I am never out of reach either by my crew foremen, or the office."

Here is another big advantage of radio—when construction equipment breaks down, you can order repair parts instantly over the air! Men and equipment go back to work quicker, saving you money by reducing idle waiting time to a minimum. G-E 2-way radio performs dependably through emergencies —is engineered to withstand the severest tests of weather, dust or shock.

Thousands of users like Bill Blake have learned that G-E 2-way radio is built to last—every tube, every component designed for full time dependability. Write today for full details on the latest in 2-way radio design . . . G.E.'s new Progress Line. *General Electric Company, Section X2265-16, Communication Equipment, Electronics Park, Syracuse, N.Y.*

2-WAY MOBILE RADIO

FREQUENCY STABILITY & SELECTIVITY guaranteed for life!

Progress Is Our Most Important Product

GENERAL ELECTRIC

(Continued from page 110)

tures, paving 0.75 mi. Indiana-East-West Toll Road, in City of East Chicago. (6 bidders) Bids June 1. CD 5/5.

ILLINOIS—State Dpt. P. Wks. & Bldgs., Div. Hys., Centennial Bldg., Springfield,

Great Lakes Dredge & Dock Co., 122 S. Michigan Ave., Chicago 3, Ill., CA $526,886, substructures for 2 bridges to carry U. S. 66 over Des Plaines River. Will Co., Bids Apr. 1, awarded June 1. CD 4/6, under LB.

ILLINOIS—Dpt. P. Wks. & Bldgs., Div. Hys., Centennial Bldg., Springfield,

General Paving Co., 30 E. John St., Champaign, Ill., CA, $798,792. c. conc. 8.2 mi. U. S. 45, Champaign Co. Bids May 20, awarded June 1. CD 5/26, under LB.

▲ ILLINOIS—Dpt. P. Wks. & Bldgs., Div. Hys., Centennial Bldg., Springfield,

Ill.—Allied Structural Steel Co., 20 N. Wacker Dr. Chicago 6, Ill., CA, $1,029,119 furnishing structural steel for dual 7-span bridge carrying U. S. 66 over Des Plaines River, Will Co.;

Ill.—American Bridge Div., U. S. Steel Co., 208 S. LaSalle St., Chicago 4, Ill.. CA, $674,029, furnishing structural steel and metal handrail for bridge over Vermilion River on U. S. 150 Danville, Vermilion Co. Bids May 20, awarded June 1. CD 5/26, under LB.

ILLINOIS—State Div. Hys., Springfield,

McCalman Constr. Co., 619 Secton St., Danville, Ill., CA, $511,850. c. conc. 1.21 mi. Ill. 1, Danville, Vermilion Co. Bids Apr. 1, awarded June 1. CD 4/6, under LB.

Consolidated Constr. Co., 101 W. Wells St., Chicago, Ill., LB, $532,255, Northwest Highway Bridge on Washington Blvd., CHICAGO, ILL. City, City Hall, Chicago, Ill. Bids May 26. CD 5/10.

▲† Davis Brothers, Inc., 2631 Bagley St., Detroit 16, Mich. LB $2,574,354. special mechanical and electric equip., constr., installation, Detroit Arsenal, Center Line, DETROIT, MICH. U. S. Eng., 600 E. Jefferson Ave., Detroit 26, Mich. Bids May 9. CD 4/28.

BUILDINGS—LB & CA

Sparton Development Co., 1720 Section Rd., Cincinnati, O. Owner Builds. $609,000. fifty-eight 1 story, brick, bsmnt. HOMES at intersection of Galbraith and Colerain Rds., CINCINNATI, O. Julius J. Cohen, c/o owner, engr.

▲ H. J. Spieker Co., 1418 Elm St., Toledo, O. CA $3,340,000. general and mechanical contracts 5 story 160,000 sq. ft. HOSPITAL addn., north of present bldg., TOLEDO, O. Toledo Hospital Assn., N. Cove Bldg., Toledo, O. Bids May 23; awarded May 31. (7 bidders). CD 5/17.

Bauer Bros. Constr. Co. 424 Lebanon Ave., Belleville, Ill., CA, $500,000, 17-store SHOPPING CENTER, 750 car parking area, 46 and W. Main Sts., BELLEVILLE, ILL. S. H. Krom, Archie Krom & Assocs. c/o Sobel & Drielsma, archts., 646 N. Michigan Ave., Chicago, Ill.

Fred Ganschinietz, 501 N. 18 St., East St. Louis, Ill., CA, $350,000. general contract 3 story, bsmnt., 55x185 ft. brick, steel, concrete, structural glass MEDICAL CENTER 47 and State Sts., EAST ST. LOUIS, ILL. Shop City, Inc., A. J. Molasky, ch. bd., 7459 Amherst Ave. University City 24, Mo. CD 2/2.

▲ L. G. Arnold, Inc., 201 N. Dewey St., Eau Claire, Wis., LB, STEAM POWER PLANT addn., ALMA, WIS. Dairyland Power Co-operative, 2615 East Ave., La Crosse, Wis. Verne E. Alden Co., 33 N. La Salle St., Chicago, Ill., engr. Bids May 25. CD 8/10/54.

Hoffman Constr. Co., 1519 N. Oneida St., Appleton, Wis., CA, Total cost. $965,800. general contract women's DORMITORY, APPLETON, WIS. Lawrence College, 112 S. Union St., Appleton, Wis. Bids May 24. CD 5/11.

George W. Auch Co., 3646 Mt. Elliott St., Detroit, Mich. CA Est. $350,000. 2 story, bsmnt., CONVENT, CENTER LINE, MICH. St. Clement Parish, 8155 Ritter St., Center Line, Mich. Bids May 10. CD 5/5.

Allen Morton Constr. Co., 18303 James Couzens Hy., Detroit, Mich. CA Est. $950,000. Ramble Hills, 85 ranch HOUSES, Farmington Rd., FARMINGTON, MICH. Certified Realty Co., 18303 James Couzens Hy., Detroit, Mich.

A. V. Schmina & Son, Wayne, Mich. CA Est. $550,000. JUNIOR HIGH SCHOOL, WAYNE, MICH. Bd. Educ., Nankin Twp., 34918 Sims St., Wayne, Mich. Bids May 16. CD 4/15.

IN COLUMBUS, OHIO . . .
Unit No. 5—Picway Station
Columbus & Southern Ohio
Electric Company
Steel Fabricated by Ingalls
Fabricating Steel is our Business
THE INGALLS IRON WORKS COMPANY
BIRMINGHAM, ALA. • PITTSBURGH, PA.
SALES OFFICES: Birmingham, New York, Chicago, Pittsburgh, Houston, New Orleans, Atlanta

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

† Ark., Jacksonville—SHOP—BA 6/22—U. S. Eng., P. O. Box 867, Little Rock, vehicle maintenance shop, Little Rock Air Force Base, ENG-03-050-55-117 under $100,000. Extended date. CD 6/1.

† Ark., Blytheville—CLUB—BA 6/23—U. S. Eng., P. O. Box 867, Little Rock, NCO club bldg., Blytheville Air Force Base, ENG-03-050-55-118. $100,000-$500,000. Extended date. CD 6/1.

† Ark., Blytheville—POST EXCHANGE—BA 6/24—U. S. Eng., P. O. Box 867, Little Rock, post exchange, Blytheville Air Force Base, ENG-03-050-55-42, $100,-000-$500,000. CD 6/1.

† Minnesota—BA About 6/27—U. S. Eng., 1217 U.S. Post Office & Custom House, St. Paul, Zone 1, channel cut-off Otter Tail River, approx. 11 mi. southeast of Breckenbridge, CIVENG-21-018-55-60.

† Ark., Jacksonville—CHAPEL, etc.—BA 6/28—U. S. Eng., P. O. Box 867, Little Rock, base chapel and educational wing, ENG-03-050-55-135, $100,000-$500,000, theater, ENG-03-050-55-134, $100,000-$500,000, Little Rock Air Force Base. Extended date. CD 6/3.

▲† Kan., Topeka—REFUELING SYSTEM—BA 6/28—U. S. Eng., 61 Davidson Bldg., Kansas City 8, Mo., standard aircraft refueling sys. multiple outlet hydrant type, Forbes Air Force Base, ENG-23-028-55-94, over $1,000,000. CD 5/27.

Mo., Columbia—STEAM DISTR. SYSTEM, etc.—BA 6/28—Curators of University of Missouri, Leslie Cowan, vice pres., 111 Jesse Hall, steam and water distr. sys., Step II; constr. power plant superstructure for Medical and Surgical School of University. Burns & Roe, Inc., 233 Broadway, New York 7, N. Y., engr. CD 3/1/46, under Public Buildings.

BUILDINGS—BA

▲ Kan., Atchison—HOSPITAL—BA 6/22—Atchison Hospital Assn., Atchison, hospital addn., $1,000,000, Cooper, Robison, Carlson & O'Brien, Commerce Trust Bldg., Kansas City, Mo., archts. CD 11/8.

Tex., Kerrville—WARD—BA 7/7—Bd. for Texas State Hospitals & Special Schools, 4405 Lamar St., Houston, four 1 story, masonry 100-bed each ward buildings for Kerrville State Home, $750,000. Wyatt C. Hedrick Co., 1200 T & P Bldg., Fort Worth, archt. CD 1/19/54.

HEAVY CONSTRUCTION—LB & CA

NEBRASKA—State Dpt. Roads & Irrigation, Lincoln,

Neb.—Francis R. Orshek, Fremont, Neb. LB. $468,269. bridges, guard rail, FA-F-50, Central City-Albion, Nance Co.;

Neb.—Hobe Engineering Co., 2121 E. Fourth St., Sioux City, Ia. LB $263,859. bridges, FA-F-494, Bristow-Monowi, Boyd Co.;

Neb.—Nichols Constr. Co., Geneva, Neb. LB $73,903. culverts, FA-F-50, Central City-Albion, Nance Co. Bids May 26. CD 5/18 and 5/19.

▲ NEBRASKA—State Dpt. Roads & Irrigation, Lincoln,

Neb.—W. A. Biba Constr. Co., Geneva, Neb. LB $194,-739. grade, detour, guard rail, roadway, soil aggregate, bit. FA S-285, Polk east, Polk Co.;

Neb.—Francis R. Orshek, Fremont, Neb. LB $628,139. seed roadway, granular subbase, FA-F-136, 294, Norfolk-Yankton, Pierce and Cedar Counties; LB $399,-688. grade, pave, culvert, bridges, guard rail, b. conc. FA-F263-SF 23506, Fremont Hooper and 23 St., Fremont and Dodge Counties; LB $79,067. roadway, mineral aggregate, bit. sand FA-S-211, Tekamah east, Burt Co.; LB $399,603. detour, culvert, guard rail, roadway, bit. sand FA-F-80, Hyannis-Mullen, Grand and Hooker Counties;

Neb.—Abel Constr. Co., 1815 Y St., Lincoln, Neb. LB $164,927. grade, detour, guard rail, roadway, b. conc. shoulder, FA-F-276, Ravenna-Cairo, Buffalo and Kearney Counties; LB $212,644. grav., detour, guard

(Continued on page 114)

Perlite-concrete design

LIGHTWEIGHT INSULATING FIREPROOF CONCRETE ROOF DECK SPECIFICATION MANUAL—By Dale A. Lehr, 218 pp. Perlite Division, Great Lakes Carbon Corp., 612 So. Flower St., Los Angeles 17, Calif. Limited free distribution.

Building designers will find very useful this new manual on perlite concrete for roof decks, in which, for the first time is taken an authoritative and sound engineering approach to a subject of growing importance. The book contains numerous tables and diagrams of roof construction that simplify design. A looseleaf binder enables supplementary information to be added later, when available.

Perlite aggregate, formed by "popping" a siliceous volcanic rock at 1,500 F, weighs less than one-tenth as much as sand or gravel. It can be used alone as a non-structural insulation fill or mixed with portland cement and water to form a lightweight structural concrete of high insulative value. The book presents data for both types of application.

Design tables in the manual enable a designer to pick out the thickness of roof deck required for various mixes to obtain a desired overall insulation value. The compressive strength of the slab also is given, thus enabling the designer to check the thickness for load-carrying capacity.

The tables give coefficients of heat transfer (U-values) for slabs on permanent forms of various types, on metal lath and on paper-backed wire mesh. The effect of ceilings is taken into account. Accompanying drawings show details of the various types of construction.

Also included in the manual are typical specifications and recommendations for mixing, handling and testing perlite concrete, technical data for subpurlins and a discussion of commonly encountered problems, with suggestions for avoiding or correcting them.

"Engineering News-Record" 6/29/54

This Solid Engineering Information Can Save You Hours on Every Job. *Don't Delay—Write Today* for Information on How to Get Your Copy of the Permalite Roof Deck Manual!

■

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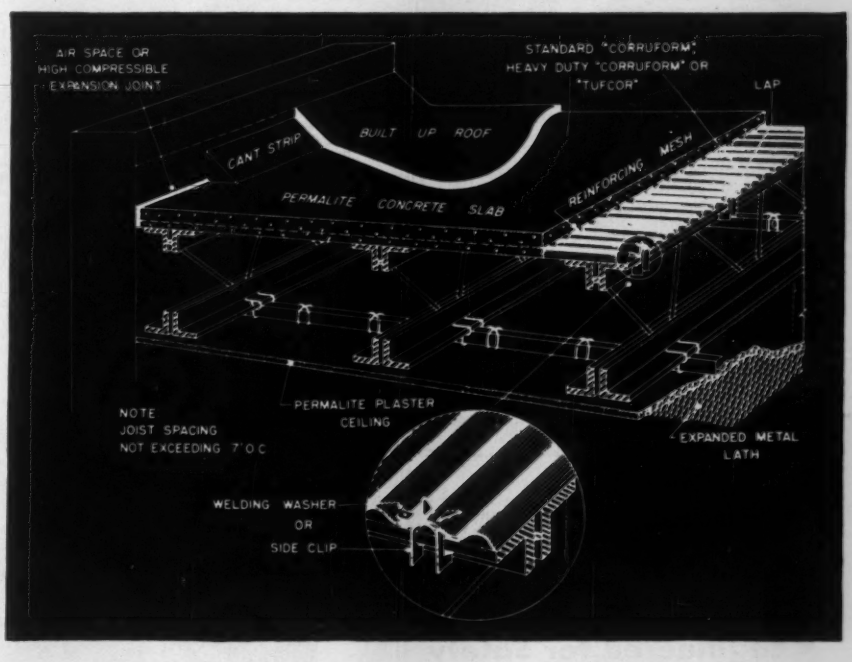
Lightweight Insulating Concrete

Roof Deck Construction

to save you time and make your work easier!


AIR SPACE OR HIGH COMPRESSIBLE EXPANSION JOINT
STANDARD "CORRUFORM" HEAVY DUTY "CORRUFORM" OR "TUFCOR"
LAP
CANT STRIP
BUILT UP ROOF
REINFORCING MESH
PERMALITE CONCRETE SLAB
NOTE JOIST SPACING NOT EXCEEDING 7' O C
PERMALITE PLASTER CEILING
EXPANDED METAL LATH
WELDING WASHER OR SIDE CLIP

The big, new Permalite Roof Deck Manual gives you, for the first time, *complete, factual, reliable data* on the use of lightweight, insulating concrete in open-web roof deck construction. Leading architects and designers agree that this 220-page volume provides complete engineering information in easy-to-use form . . . all the different roof forms and types of suspended ceilings, with page after page of tables on slab thickness, weights, strengths and U-factors, already worked out for you to make specifying quick, easy and accurate. You can get this authoritative handbook, packed with usable, every-day working information, from the Permalite franchisee serving your area — for his name and address

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Perlite Division, Great Lakes Carbon Corp.,
612 So. Flower St., Los Angeles 17, Calif.

(Continued from page 112)

rail, roadway, soil aggregate shoulder, b. conc. FA-S-215, Wilber-Dewitt, Saline Co.; LB $110,135. grade, culvert, guard rail, roadbed, crushed rock bit. FA-F-226, Seward-Milford, Seward Co.;

Neb.—**Booth & Olson,** 529 Insurance Exchange Bldg., Sioux City, Iowa. LB $303,145. grade, pave, culvert, guard rail FA-S-196, 473, at Omaha-Florence, southwest Redick Ave., Douglas Co.;

Neb.—**Dobson Bros. Constr. Co.,** 512 First National Bank Bldg., Lincoln, Neb. LB $351,339. grade, seed, guard rail roadway, crushed rock, b. conc. FA-F-139, Tilden-Norfolk, Madison Co.;

Neb.—**H. W. Johnson,** South Sioux City, Neb. LB $267,988. detour, guard rail roadway, granular subbase, shoulder, bit. FA-S-123, 198 Newcastle-Ponca, Dixon Co.;

Neb.—**Nichols Constr. Co.,** Geneva, Neb. LB $157,577. grav., detour, roadway, soil aggregate, shoulder bit. FA-F-251, Bertrand-Loomis, Phelps Co.;

Neb.—**Missouri Valley Constr. Co.,** Omaha National Bank Bldg., Omaha, Neb. LB $281,724. grade, pave, culvert, b. conc. FA-F-235, Wahoo-Omaha, Saunders Co.; LB $149,970. grade, seed, guard rail, roadbed, b. conc. FA-F-202, Marriman-Cody, Cherry Co.; LB $121,729. roadway prep., soil aggregate, b. conc. FA-F-50, Central City-Albion, Nance Co.; LB $102,084. grade, seal, bit. sand FA-S-13, Mullen-Tryon, Hooker Co.; LB $179,176. grade, detour, roadway, soil aggregate, shoulder, bit. mat. FA-F-327 and SF-47549, Ansley-Loup City, Sherman Co.;

Neb.—**R. H. Stump Constr. Co.,** Memphis, Neb. LB $156,400. subgrade, soil aggregate, b. conc. FA-S-78, 577, 578, 834 Palmer, South Central City, west Clarks south, Clarks west, Merrick Co.;

Neb.—**Arnold Swanson & Co.,** Hastings, Neb. LB $117,023. road prep., shoulder, b. conc. FA-F-64 Norfolk north, Pierce Co.;

Neb.—**Western Paving Constr. Co.,** 5105 Washington St., Denver, Colo. LB $108,952. guard rail, roadway, soil aggregate, bit. FA-F-282, Harrison west, Sioux Co.; LB $76,196. guard rail, roadway, b. conc. shoulder, FA-F-45, Harrison-Crawford, Sioux and Dawes Counties;

Neb.—**Geo. K. Werner & Son,** Clay Center, Neb. LB $76,206. armor roadway, bit. mat., shoulder, FA-D-141, Long Pine-Bassett, Brown and Rock Counties; LB $268,065. grade, detour, roadway, granular subbase, soil aggregate shoulder, armor, bit. mat. FA-F-51, Franklin north, Franklin Co.;

Neb.—**Bonahoom-O'Meara Constr. Co.,** Hartington, Neb. and **Coutts Constr. Co.,** Creighton, Neb. LB $90,944. (jointly) grade, pave, seed FA-F-50, Central City-Albion, Nance Co. Bids May 26. CD 5/18.

† **J. W. Jones Constr. Co.,** 8800 Susan Dr. S.E., Albuquerque, N. M. LB $321,490, est. $319,130. taxiway shoulders, airfield lighting, airfield marking, alteration telephone cable, general excav., McConnell Air Force Base, WICHITA, KAN. U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo. Bids May 24. CD 5/18.

BUILDINGS—LB & CA

Byers Constr. Co., 1026 McGee St., Kansas City, Mo. Owner Builds. $500,000. SHOPPING CENTER, 9 acre site at U. S. 71 bypass and Missouri 10, Liberty Heights, LIBERTY, MO.

Flett Constr. Co., 4325 Troost Ave., Kansas City, Mo. CA, $966,000. Northgate Junior High SCHOOL, 40 acre tract, 48 St. and Brooklyn Ave., NORTH KANSAS CITY, MO. School Dist., 23 and Gentry Sts., North Kansas City, Mo. Awarded May 31. CD 5/24.

J. S. Alberici Constr. Co., 1550 Irving Ave., St. Louis 20, Mo. CA Est. $968,000. superstructure 2 story, 140x660 ft. automotive assembly PLANT addn., ST. LOUIS, MO. Chevrolet St. Louis Division, General Motors Corp., 3809 N. Union Blvd., St. Louis 20, Mo. Awarded May 27.

Kretzger Constr. Co., 1220 N. Glenstone St., Springfield, Mo. CA Est. $400,000. ADMINISTRATION BLDG., SPRINGFIELD, MO. Central Bible Institute, Rev. Bartlet, Peterson, pres., 3000 N. Grant St., Springfield, Mo. Richard P. Stahl, 530 S. National Ave., Springfield, Mo., archt. CD 2/18/53.

R. F. Ball Constr. Co., 3237 Singleton Blvd., Dallas, Tex. CA $688,000, BANK and GARAGE addns., alterations, DALLAS, TEX. Texas Bank & Trust Co., Texas Bank Bldg., Dallas, Tex. Bids May 3 rejected. CD 5/12 under LB.

J. Lawrence Jones, 406 W. Clarendon St., Dallas, Tex., CA, $775,000. SHOPPING CENTER UNIT, DALLAS, TEX. W. W. Caruth, Jr., 5603 Greenville St., Dallas, Tex. CD 7/7.

▲ **Tips Constr. Div.,** 701 Forest Ave., Dallas, Tex., CA $675,000 (d) 100 APARTMENT UNITS; CA $675,000 (e) 100 APARTMENT UNITS, DALLAS, TEX. Tips Investment Co., 701 Forest Ave. Rd. Dallas, Tex. CD 5/4/54.

L. B. Jackson, 610 Richmond Rd., Houston, Tex., Force Account. $400,400. new PLANT and WAREHOUSING or STORAGE, HOUSTON, TEX. Houston Linen Service, lessee. CD 10/13.

▲ **Tellepsen Constr. Co.,** 1710 Telephone Rd., Houston, Tex., CA, $2,225,000, 2nd phase of SHOPPING CENTER covering 14-acres, HOUSTON, TEX. Northshore Village Corp., c/o Dan Moody, Abstract & Title Bldg., Houston, Tex. CD 4/22.

▲ **Andy Kivlin, Builder,** 5211 Bayou Glen St., Houston, Tex., CA, $395,100 (a) 36 DWELLINGS; CA $322,475 (b) 16 DWELLINGS; CA $349,175 (c) 28 DWELLINGS, HOUSTON, TEX. Andy Kivlin, 5211 Bayou Glen, Houston, Tex. Grand total $1,066,750. CD 4/30/54.

Tellepsen Constr. Co., 1710 Telephone Rd., Houston, Tex., CA, $619,000. 3-unit SHOPPING CENTER, HOUSTON, TEX. Lakewood Shopping Center c/o J. C. Epps, Jr. & Morris C. Pier, 12517 Kathryn Court, Houston, Tex. CD 10/15.

▲ **Brown & Daniels, Inc.,** 1504 S. Nursery St., Irving, Tex., Owner Builds, $421,170, Sect. 5, 45 DWELLINGS; $354,125, Sect. 6, 34 DWELLINGS; $348,075, Sect. 7, 25 DWELLINGS, IRVING, TEX. Grand total $1,123,370. CD 12/30.

W. H. Barnes Real Estate Co., 1418 W. Hildebrand St., San Antonio, Tex., Owner Builds, $844,000 18 all-masonry DWELLINGS and 9 DWELLINGS SAN ANTONIO, Tex. CD 12/17.

FAR WEST

HEAVY CONSTRUCTION—BA

† **Calif., San Diego**—TEST CELLS—BA 6/28—Dpt. Navy, Eleventh Naval Dist., San Diego, turbo-jet engine test cells, Naval Air Station, NOY 86764, Spec. 45875. Plans deposit $40. CD 10/22.

BUILDINGS—BA

▲ **Calif., Downey**—SCHOOL—BA 6/28—Downey Union High School Dist., Downey, 89,955 sq. ft. Earl Warren High School. $1,500,000. Denman & MacDonald, 5749 S. Wilton Pl., Los Angeles, archts. CD 2/8.

Calif., Richmond—SCHOOL—BA 6/28—Richmond City Elementary School Dist., 1108 Bissell Ave., Grand Elementary School. $600,000. Plans deposit $25. Donald Hardison & Assocs., 225 Broadway, Oakland, archts. Hall, Pregnoff & Mather, 251 Kearney St., San Francisco, engrs. CD 1/15/54.

HEAVY CONSTRUCTION—LB & CA

▲ **Arundel Corp.,** foot of Pratt St., Baltimore, Md., and **L. E. Dixon Co.,** 409 S. California St., San Gabriel, Calif., LB, $10,863,140. constr. Mayfield hydro-electric dam on Cowlitz River, TACOMA, WASH. City, City Hall, Tacoma, Wash. Bids June 3. CD 5/23.

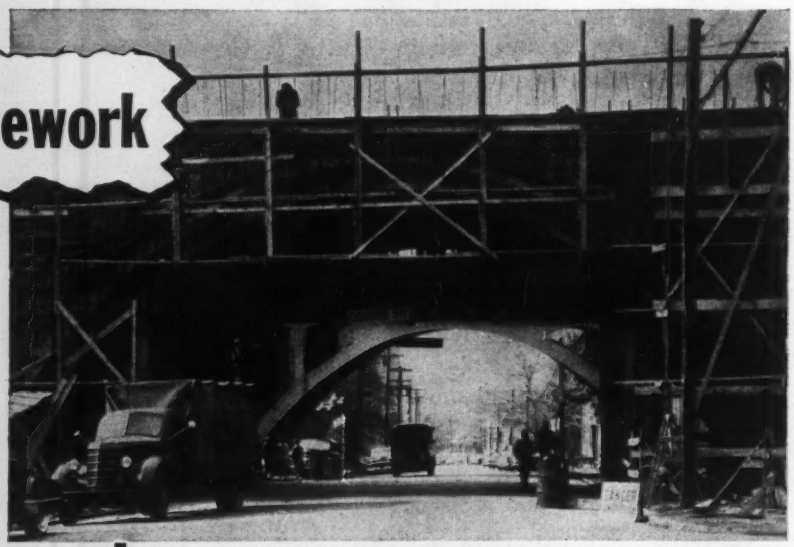
▲ **CALIFORNIA**—State Div. Hys., P. Wks. Bldg., Sacramento,

Calif.—Ben C. Gerwick, Inc., 112 Market St., San Francisco, Calif., CA, $842,406, grading, surf. 2.5 mi. U. S. 101, and rein.-con. bridge, Eureka, Humboldt Co.;

Calif.—Frederickson & Watson Constr. Co., 873 81 Ave., Oakland, Calif., CA, $786,667, grading, surf. 3.7 mi. U. S. 101 near Arroyo Hondo and Gaviota, Santa Barbara Co. Bids May 18, awarded June 1. CD 5/24.

† **Stolte, Inc.,** 8451 San Leandro St., Oakland, Calif., CA, $569,834, gymnasium-officers' club, and NCO bldg., Edwards Air Force Base, ENG-04-353-55-147, MUROC, CALIF. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids May 25. CD 6/1, under LB.

Pre-Fabricated Falsework



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BUILDINGS—LB & CA

Johnson-Howa, 181 W. 21 St., S., Salt Lake City, Utah, CA, $392,807, general contract Riley SCHOOL, SALT LAKE CITY, UTAH. Salt Lake Bd. Educ., 440 E. First St. S., Salt Lake City, Utah. Bids May 24.

▲† **M. H. Golden Constr. Co.,** 3485 Noell Ave., San Diego, Calif., LB, $1,254,000, 860-man BARRACKS, Amphibious Base, CORONADO, CALIF. Dpt. Navy, Eleventh Naval Dist., San Diego, Calif. Bids May 27. CD 5/12.

Woodside Builders, 2204 McDonald Ave., Richmond, Calif., Owner Builds. $423,000. 47 HOMES Subdivision, Sherwood Forest Tract, EL SOBRANTE, CALIF.

J. T. Cowan, 625 Belmont St., Fresno, Calif., CA, $400,000, 125x280 ft. PLANT addn., Chestnut and Jensen Aves., FRESNO, CALIF. Germain Seed Co., c/o H. W. Taul, archt. and engr., 17 N. Van Ness Ave., Fresno, Calif.

Heftler Constr. Co., 232 N. Rodeo Dr., Beverly Hills, Calif., Owner Builds, $875,000. 78 frame, stucco DWELLINGS, Martin Lane, Mt. View Pl., FULLERTON, CALIF.

W. E. Robertson Co., 4015 W. Jefferson Blvd., Los Angeles, Calif., CA, $450,000. 45 stucco DWELLINGS, Orangethorpe, Gage and Woodcrest Sts., FULLERTON, CALIF. Fullerton Park Homes, 4015 W. Jefferson Blvd., Los Angeles, Calif. Max Matzman, 4015 W. Jefferson Blvd., Los Angeles, Calif., archt.

▲† **Robert McKee General Contractor, Inc.,** 4701 San Fernando Rd. West, Los Angeles, Calif. CA $2,342,000. Item 1 incl. alternate; and Item 2 clinical and surgical bldg. at Wadsworth HOSPITAL, LOS ANGELES, CALIF. Veterans Admin., Munitions Bldg., Wash., D. C. Bids May 3, awarded June 2. CD 5/5, under LB.

Guy Munson, 275 W. Tulare St., Dinuba, Calif., LB $524,200, classroom addns. to 3 elementary SCHOOLS, VISALIA, CALIF. Visalia School Dist., 815 S. Conyer St., Visalia, Calif. Robt. Kaestner, 210 N. Encina St., archt. CD 10/13.

CANADA

BUILDINGS—BA

Que., Montreal—HOME—BA 6/20—L'aide Aux Vieux Xouples c/o Jacques M. Morin, archt., 84 Notre Dame St., W., 4 story, no bsmnt., 40x275 ft. rein.-con., brick old people's home, Beaugrand and Sherbrooke Sts. $800,000. Lalonde & Valois, 720 Cathcart St., engrs.

▲ **Ont., Barriefield**—APARTMENTS—BA 6/21—Central Mortgage & Housing Corp., 40 Eglinton Ave., E., Toronto, 148 type "B" rein.-con. apartments, Army Camp $1,500,000. Plans deposit $100. H. I. Stricker, c/o owner, engr.

Ont., London—BARRACKS, etc.—BA 6/28—Defence Constr. Ltd., 56 Lyon St., Ottawa, 180-man barrack block, O.M. technical stores, 2 gatehouses, grading, etc. $750,000. Plans deposit $100. CD 3/18/53.

BUILDINGS—SLC

▲ **B. C., Vancouver** — GRAIN ELEVATOR — Alberta Wheat Pool Elevator, foot of Cassiar St., soon lets contract grain elevator exten. $2,000,000. C. D. Howe Co., Ltd., Public Utilities Bldg., Port Arthur, Ont., engrs.

HEAVY CONSTRUCTION—LB & CA

▲ **Atlas Constr. Co., Ltd.,** 4781 St. Catherines St. W., Westmount, Que., CA, $3,300,000, (7 bidders) three-sections, 16,732 lin. ft. compressed-earth filled Cornwall Dyke, St. Lawrence Proj. ONTARIO. Hydro-Electric Comn., 360 University Ave., Toronto, Ont. Bids May 24. CD 5/3.

▲ **Prodor Constr. Co. Ltd.,** 10544 115 St., Edmonton, Alta., CA $1,162,617. water supply, sewage and sewage disposal proj. WHITEHORSE, YUKON TERRITORY. Yukon Territorial Govt., Whitehorse, Yukon Territory. Bids Apr. 25. CD 5/31, under LB.

BUILDINGS—LB & CA

▲ **Byers Constr. Co., Ltd.,** 5675 Western Ave., Montreal, Que., CA, $3,050,523, CENTRAL HEATING PLANT at Canadian Army Base, Camp Gagetown, FREDERICTON, N. B. Defence Constr. Ltd., 56 Lyon St., Ottawa, Ont. Bids May 5, awarded May 31, CD 4/21;
Modern Constr. Ltd., Salisbury Rd., Moncton, N. B., CA, $822,140. Training Area Road No. 1 and Tank Track Nos. 1 and 2, (Fredericton, N. B.).

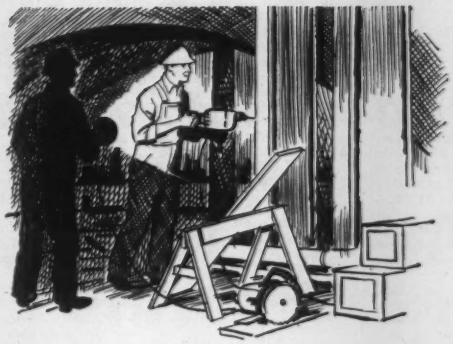
Abbey Landry, Halifax, 10 Release Center, Moncton, N.B., CA $425,000. CHURCH, NEWCASTLE, N.B. St. Mary's Parish, Newcastle, N. B. Awarded May 20.

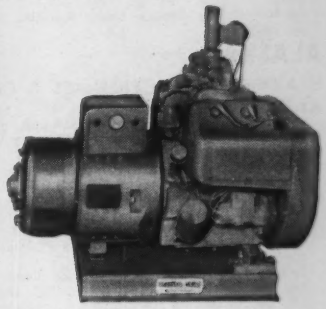
J. L. E. Price & Co. Ltd., 4664 St. Catherine St. W., Montreal, Que., CA $600,000. TELEGRAPH BLDG. Water St. ST. JOHN'S NEWFOUNDLAND, Canadian National Railways, G. F. Drummond, ch. archt., 355 McGill St., Montreal, Que. Awarded May 26.

▲ **Ross-Meagher Ltd.,** 9 Echo Dr., Ottawa, Ont., LB, $1,038,416, POLICE BLDG., Besserer St., OTTAWA, ONT. City, City Hall, Ottawa, Ont. Bids May 24. CD 4/12.

Claydon Co. Ltd., 108 Syndicate Ave., N. Fort William, Ont., LB $795,000. HOME for the AGED, Algoma St., PORT ARTHUR, ONT. Bd. Trustees District Home for the Aged, Public Utilities Bldg., Port Arthur, Ont. Bids May 26. CD 5/9.

B.G.L. Engineers & Builders Ltd., 7020 Cote des Neiges Rd., Montreal, Que., CA $578,300. SCHOOL, Terrebonne Ave., MONTREAL, QUE. Montreal Catholic School Comn., 117 St. Catherine St. W., Montreal, Que. Bids Mar. 31, awarded May 27. CD 4/8, under LB.





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▲ **Poole Constr. Co., Ltd.**, Hamilton and 8 Sts., Regina, Sask., CA, $1,554,250. Composite HIGH SCHOOL in River Heights District, REGINA, SASK. Regina Collegiate Bd., Regina, Sask. Awarded May 30. CD 12/28.

ALASKA

HEAVY CONSTRUCTION—LB & CA

▲† **Grove Shepherd Wilson & Krug, Inc.**, 120 Sixth Ave. N., Seattle 13, Wash. LB $1,314,266, est. $1,612,-623. Schedule E fieldhouse, Elmendorf Air Force Base, (2 bidders); LB $1,397,428, est. $1,538,640. Schedule H-1, east base maintenance hangar with shop bldg. (3 bidders); and LB $1,389,032, est. $1,521,-478. Schedule H-2 west base maintenance hangar with shop bldg., both at Ladd Air Force Base, LB $139,218, est. $188,642. Schedule A flight simulator bldg. (3 bidders), Elmendorf Air Force Base, ALASKA. U. S. Eng., Anchorage, Alaska;
Islands Constr. Co., Inc., Anderson Constr. Co., Inc., and Montin-Benson, 1103 N. 36 St., Seattle, Wash. LB $273,019, est. $300,756. Schedule B, ammo. storage facilities, Elmendorf Air Force Base (3 bidders), (Alaska);
Kuney Johnson Co., 235 North St. N., Seattle, Wash. LB $1,396,364, est. $1,592,809. Schedule C, base maintenance hangar and shop (3 bidders); LB $132,-000, est. $171,544. armament and electronics shop and solvent storage, Elmendorf Air Force Base (3 bidders), (Alaska).

▲† **Islands Construction Inc., Anderson Constr. Co. Inc. & Montin-Benson Corp.**, 1103 N 36 St., Seattle, Wash., CA $6,170,357, flight simulator bldg., ammo storage, base maint. hangar and shop, armament and electronics shop and solvent storage, field house, imprvs. to family housing and airmen's dormitories, communication duct line sys. at Elmendorf Air Force Base; East and West base maint. hangars and shop bldg. at Ladd Air Force Base, Inv. 55-52, ALASKA. U. S. Eng., Anchorage, Alaska. Bids May 25, awarded May 31. CD 6/1, under LB.
▲† **Morrison-Knudsen Co.**, Anchorage, Alaska, CA $1,647,009, Schedules A and B, paving and taxiway lighting, clearing and grading, Elmendorf Air Force Base, Inv. 55-54. Grand total $3,745,456. Bids May 20. CD 5/26, under LB;
Green Constr. Co. & S. Birch & Sons Constr. Co., 928 Securities Bldg., Seattle, Wash., CA $1,195,369, Schedule C, constr. and paving of access aprons, Ladd Air Force Base. Inv. 55-54, (Alaska);
Peter Kiewit Sons Co., 1300 Aloha St., Seattle, Wash., CA $903,078, Schedules D, E, F and G, alert taxiway rehabilitation, paving and lighting, duct communication sys. and driveway and parking area paving for organizational maint. shops, Ladd Air Force Base, Inv. 55-54. (Alaska).

LATIN AMERICA

HEAVY CONSTRUCTION—LB & CA

▲ **Consorcio de Ingenieros Contratistas Generles**, Lima, Peru, CA Est. $15-$16,000,000. 16 story HOSPITAL with two 13 story wings, LIMA, PERU. Employees Central Social Insurance Hospital, Lima, Peru. Edward D. Stone, 50 E. 64 St., New York, N. Y., U. S. A. and A. L. Aydelott, of Dent & Aydelott, First Natl. Bank Bldg., Memphis, Tenn., U. S. A., archts. Peter W. Bruder, 200 E. 37 St., New York 16, N. Y., U. S. A., mechanical engr. Merrill & Mann, Shrine Bldg., Memphis, Tenn., U. S. A., structural engrs. for main structure. Fraioli-Blum-Yesselman, 1214 Granby St., Norfolk, Va., U. S. A., structural engrs., for remainder of project. CD 8/3/50.

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PROPOSED PROJECTS

WATER SUPPLY

O., **Warren**—Comrs. Trumbull Co., water distr. plant and water mains to serve Brookfield, near here. $700,000.

Tex., Abilene—City, A. P. Hancock, mgr. City Hall, 16 mgd Grimes water purification plant expansion. $600,000. Freese & Nichols, 407 Danciger Bldg., Fort Worth, consult. engrs. CD 8/2.

▲ **Ont., Toronto**—Municipality of Metropolitan Toronto, 67 Adelaide St. E., 36 in. steel plate concrete encased water main from Scarborough Waterworks on Fishleigh Dr. to Lawrence Ave. and Bellamy Rd. $1,995,455. Proctor, Redfern & Laughlin, 11 Jordan St., consult. engrs. CD 2/2/50.

SEWERS, WASTE DISPOSAL

▲ **Calif., Los Angeles**—City Council, City Hall expanding collection and intercepting sewers, conversion of Hyperion treatment plant to primary treatment and new ocean outfall sewer to carry plant wastes 5-5 miles off shore an effulent pumping plant and a separate sludge outfall and pumping facilities, $40,-700,000. Hyperion Engineers (Holmes & Narver, Inc., 824 S. Figueroa St., Daniel Mann Johnson & Mendenhall, 4201 W. Sunset St., and Koebig & Koebig, 3142 Wilshire Blvd) consult. engrs. A consulting Board consisting of a representative of each designing firm, Richard R. Kennedy, 604 Mission St., San Francisco, and Richard Pomeroy, 660 S. Fair Oak St., Pasadena, consulting engineers who advised the citizens committee and the Los Angeles City engineer. CD 4/8.

▲ **Kan., Arkansas City**—City, sewage plant, $1,138,-000, Plan I; $1,477,900, Plan II. Black & Veatch, 4706 Broadway, Kansas City, Mo., consult. engrs. CD 10/12.

Mass., Boston—City, Dpt. P. Wks., City Hall Annex, sewerage works, Stony Brook, $500,000.

▲ **Mo., St. Louis**—City, c/o Frank J. McDevitt, pres. Bd. P. Service, 304 City Hall, Zone 3, voted bonds May 26, rubbish incinerator bldg. and equip. in North St. Louis, $2,000,000; garbage-grinding plant, $250,-000; garage headquarters for garbage section, $150,-000. CD 4/22.

BRIDGES

▲ **Mo., St. Louis**—City, Frank J. McDevitt, pres. Bd. P. Service, 304 City Hall, Zone 3, voted bonds May 26, constr. imprvs. to bridges and viaducts $11,400,-000.

▲ **Ont., Toronto**—Municipality of Metropolitan Toronto, 67 Adelaide St. E., level crossing elimination at Canadian Pacific Ry. crossing at Dundas St. W. $1,700,000. M. M. Dillon & Co. Ltd., 69 Eglinton Ave. E., consult. engrs. CD 3/1.

STREETS AND ROADS

▲ **Missouri**—City of St. Louis, c/o Frank J. McDevitt, pres. Bd. P. Service, 304 City Hall, St. Louis, Zone 3, voted $18,000,000 bonds May 26 to finance city's share of cost, constr. Daniel Boone, Mark Twain and Ozark Expressways, St. Louis, Total est. $93,000,000. CD 4/22.

▲ **Mo., St. Louis**—City, c/o Frank J. McDevitt, pres. Bd. P. Service, 304 City Hall, Zone 3, voted bonds May 26, street wid'n. imprvs., and related work, $11,615,000; resurf. various streets and alleys, $2,000,000. CD 4/22.

▲ **NEW YORK**—State Dpt. P. Wks., The Governor Alfred E. Smith State Office Bldg., Albany,
Erie Co.—Sect. 1 of Kensington Expressway from Michigan Ave. to Humboldt Parkway, Total est. $45,000,-000. DeLeuw, Cather & Brill, 202 E. 44 St., New York, Zone 17, engrs., CD 2/26/54.
Scajaquada Creek Expressway to link Humboldt Parkway extension with Niagara Section of Thruway, Buffalo, William H. McFarland, Press Bldg., Binghamton, engr.
Tex., River Oaks—City, c/o R. D. Hays, mayor, street imprvs., incl. paving and drainage, $600,000. Reaves & Gregory, 3323 W. 7 St., Fort Worth, consult. engrs.
▲ **N. S., Sydney**—City, City Hall, street paving, curbs, gutters, sidewalks, etc. on various streets. $2,000,000.

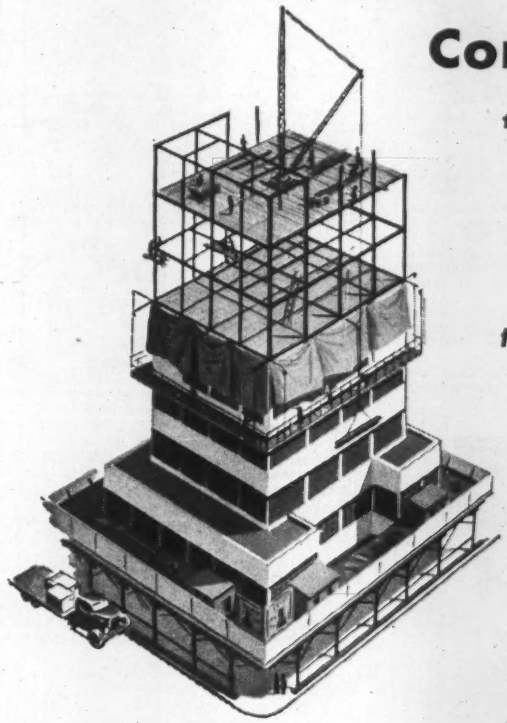
EARTHWORK, WATERWAYS

▲ **Mo., St. Louis**—City, Frank J. McDevitt, pres. Bd. P. Service, 304 City Hall, Zone 3, voted $7,547,000 bonds May 26 to finance city's share of cost, system of levees, floodwalls, pumping stations and sewers to protect 11 mi. stretch of Mississippi River waterfront. CD 4/22.

AIRPORTS

† **Ariz., Ajo**—AIR FORCE STATION—U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif., plans by Johannessen & Girard, First Natl. Bank Bldg., Phoenix, air force station, $1,869,000.

▲† **Calif., Muroc**—ENGINE TEST FACILITY—U. S. Eng., 751 S. Figueroa St., Los Angeles, jet propulsion engine test facility, Edwards Air Force Base,
(Continued on page 118)



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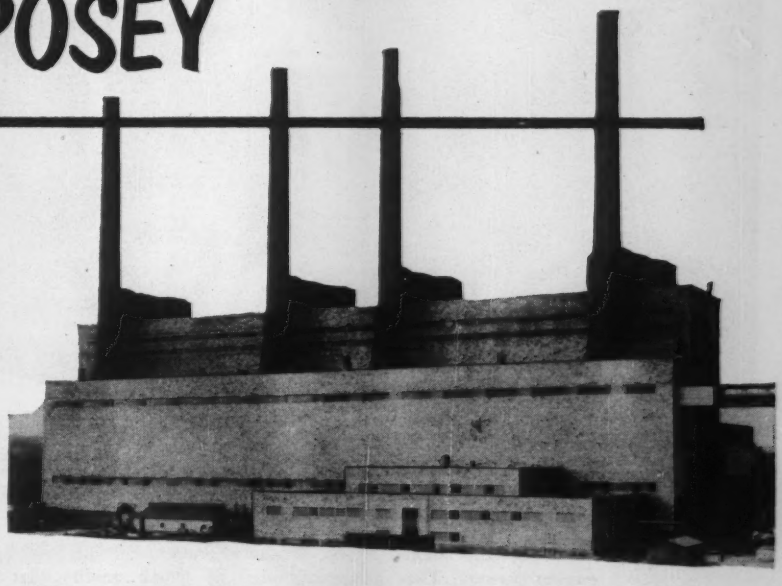

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(Continued from page 116)

$4,185,000. Aerojet-General Corp., 6352 N. Irwindale Ave., Azusa, consult. engrs. CD 12/10/52.

▲† **La., Lake Charles**—HOUSING—U. S. Eng., Box 1229, Galveston, Tex., plans by Ricciuti & Assoc., 302 Queens & Crescent Bldg., New Orleans, family housing, Lake Charles Air Force Base, $5,000,000.

▲† **Nev., Las Vegas**—DORMITORY—U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif., airmen's dormitory and dining hall at Nellis Air Force Base, $1,085,000. Koebig & Koebig, 3142 Wilshire Blvd., Los Angeles, Calif., consult. engrs. CD 2/10/52.

PUBLIC BUILDINGS

▲ **Calif., Agnew**—RECEIVING, etc.—State Div. Architecture, 1120 N St., Sacramento, receiving and treatment bldg., Agnew State Mental Hospital $3,708,000. CD 10/26.

Calif., Arcata—PHYSICAL EDUCATION—State Div. Architecture, 1120 N St., Sacramento, men's physical education, Humboldt State College. $575,000.

Calif., Corona—COTTAGE, etc.—State Div. Architecture, 1120 N St., Sacramento, inmate cottage and classroom bldg., California Institution for Women. $800,000.

▲ **Calif., Downey**—SCHOOLS—Downey City School District, Downey, voted $1,500,000 bonds, schools. CD 1/26.

▲ **Calif., Fresno**—CLASSROOM, etc.—State Div. Architecture, 1120 N St., Sacramento, classroom bldg., $835,000; cafeteria, Fresno State College, $500,000.

▲ **Calif., Long Beach**—MUSIC, etc.—State Div. Architecture, 1120 N St., Sacramento music bldg., $504,000; men's gymnasium, $680,000, Long Beach State College.

Calif., Monrovia—SCHOOL—Monrovia-Duarte High School Dist., Monrovia, voted $700,000 bonds May 20, rehabilitation existing high school. CD 11/3.

▲ **Calif., Ontario**—COLLEGE—Chaffey School Dist., 4 and Euclid Sts., defeated $3,600,000 bonds expansion of Chaffey College. CD 3/7.

▲ **Calif., Palo Alto**—HOSPITAL—City, City Hall, voted $4,000,000 bonds, Joint Palo Alto Stanford Hospital. CD 3/9/54.

▲ **Calif., Palo Alto**—HOSPITAL—City, City Hall, plans by Edward D. Stone, 50 E. 64 St., New York, N. Y., 1,000-bed hospital. $4,000,000. CD 6/1.

▲ **Calif., Patton**—WARD, etc.—State Div. Architecture, 1120 N St., Sacramento, two ward bldgs. $4,170,000; kitchen bldg. addns., alterations, $737,000, at Patton State Mental Hospital. CD 1/14.

▲ **Calif., Sacramento**—LIFE SCIENCE, etc.—State Div. Architecture, 1120 N St., Sacramento, life science bldg., $721,400. general classroom bldg. $602,000, Sacramento State College.

▲ **Calif., San Diego**—CLASSROOM, etc.—State Div. Architecture, 1120 N St., Sacramento, general classroom and faculty office bldg., $1,950,000; cafeteria, $575,000; cut and fill to expand San Diego State College Campus and utility development for 3 new buildings, $287,000. CD 1/14.

▲ **Calif., San Dimas**—PHYSICAL EDUCATION, etc.—State Div. Architecture, 1120 N St., Sacramento, physical education facilities, Kellogg Campus, $735,000; cafeteria at Kellogg Campus, $441,000, California State Polytechnic College.

▲ **Calif., San Francisco** — CLASSROOM — State Div. Architecture, P. Wks. Bldg., Sacramento, classroom bldg., San Francisco State College. $1,223,000.

▲ **Calif., San Francisco**—OFFICE—State Div. Architecture, P. Wks. Bldg., Sacramento, 6 story office bldg. to connect with present one, $6,617,300.

Calif., San Francisco—COW PALACE ALTERATIONS—City and San Francisco Co., Dpt. P. Wks., City Hall, San Francisco, cow palace alterations, $500,000.

Calif., San Jose—ADMINISTRATION—State Div. Architecture, 1120 N St., Sacramento, administration bldg., San Jose State College. $783,000. CD 4/26/43.

▲ **Calif., Soledad**—CELL—State Div. Architecture, 1120 N St., Sacramento, cell bldgs., Soledad State Prison. $5,600,000. CD 3/14/46.

Calif., Ventura—SCHOOLS—Ventura School Dist., Ventura, voted $900,000 bonds for schools. CD 3/23.

▲ **Conn., Meriden**—HIGH SCHOOL—City, c/o Bd. Educ., plans by Willard Wilkins, 945 Asylum Ave., Hartford, high school. $1,000,000. CD 2/25/49.

▲ **Conn., Westport**—SCHOOL—Town Bd. Educ., Town Hall, plans by Sherwood Mills & Smith, 65 Broad St., Stamford, high school, North Ave. $2,000,000. CD 1/12/54.

Idaho, Caldwell—SCHOOL—School District 132, Caldwell, high school. $579,500.

▲† **Ill., Great Lakes**—HOSPITAL—Dpt. Navy, 18 St. and Constitution Ave. N. W., Wash. 25, D. C., Great Lakes Naval Training Center Hospital Expansion program. $12,000,000. CD 6/28/51.

Ill., Roxana—SCHOOLS—Roxana Community Unit School Dist. Bd. Educ., Chaffer and Thomas Sts. voted $900,000 bonds, school imprv. and Junior and Senior High Schools addns., South Roxana and Rosewood Schools. CD 5/9.

Iowa, Britt—SCHOOLS—Community School Dist., Britt, voted $650,000 bonds, school. CD 5/9.

▲ **Iowa, Sioux City**—SCHOOLS—Bd. Educ., 1221 Pierce St., defeated $1,778,000 bonds May 23, schools. CD 5/17.

▲ **Kan., Junction City**—SCHOOL—Bd. Educ., Junction City, plans by Schmidt, McVay and Peddie, 1832 E. Second St., Wichita, high school, $1,500,000.

▲ **Ky., Bowling Green** — DORMITORIES — State, Div. Purchases, Frankfort, plans by Arrasmith & Tyler, Madrid Bldg., Louisville, and Roberts & Johnson, assoc. archts., 115 E. Fourth St., Owensboro, two men's dormitories, Western State Teachers' College, $1,200,000. CD 3/8.

▲† **Md., Hermanville**—BUILDING, etc.—U. S. Eng., First and Douglas Sts. N.W., Wash. 25, D. C., building, tank, fence and utilities, $1,000,000-$3,000,000.

▲ **Mass., Brockton**—SCHOOL—City, Edwin A. Nelson, Warren St., 2 Junior High Schools, East Side and North Side. $3,800,000.

▲ **Mass., Worcester**—GARAGE—City, Dpt. P. Wks., 20 E. Worcester St., 5 story, rein.-con. parking garage, between Pearl and Elm Sts., $620,000; 4 story parking garage Mechanic, Union, Foster and Mercantile Sts., $413,000.

† **Mich., Flint**—ARMORY—U. S. Eng., 600 E. Jefferson Ave., Detroit, armory, 6 acre site. $500,000.

▲ **Mich., Plainwell**—SCHOOL—Bd. Educ., Plainwell School Dist., $1,250,000 bond election June 8, Junior High School, $550,000; two elementary schools, $450,000; high school imprvs., $100,000, bus garage, Louis C. Kingscott & Assoc., 511 Monroe St., Kalamazoo, archts.

▲ **Minn., Hopkins**—SCHOOL—Bd. Educ., School Dist. No. 225, L. H. Tanglen, supt. Schools, $1,400,000 bond election June 21, school imprvs., Glen Lake School, $800,000; Junior High School addn., etc. CD 12/5/51.

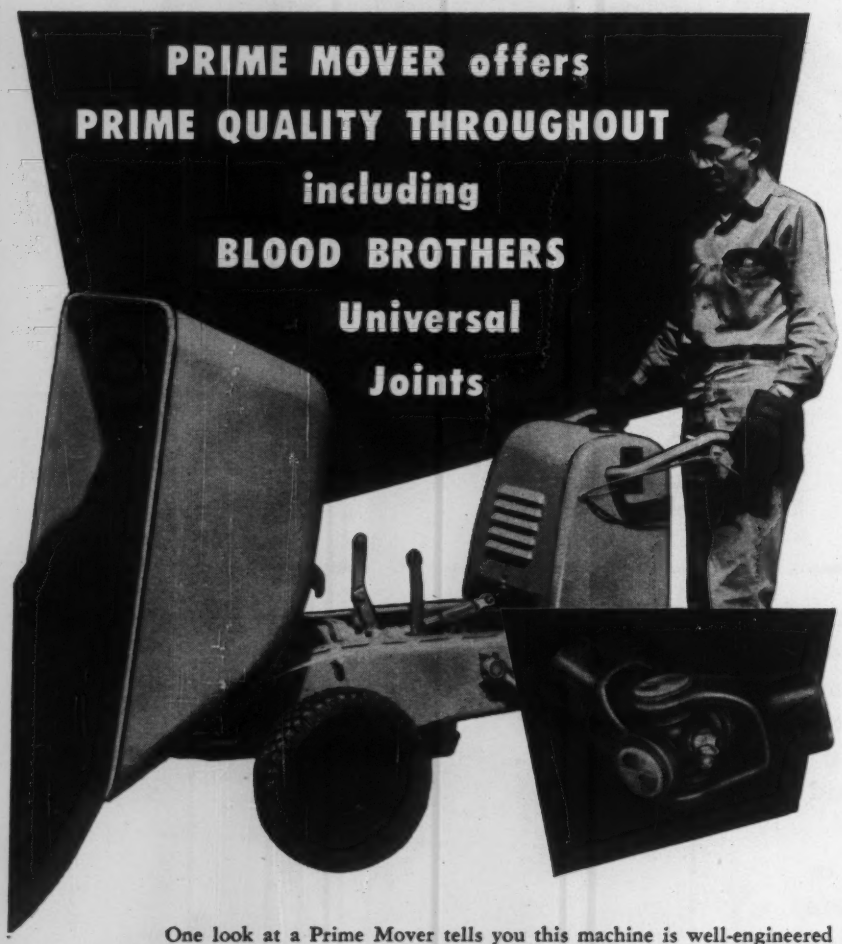
Mo., Jefferson City—CELL HOUSE—State Penitentiary c/o Warden, Jefferson City, security cellhouse for penitentiary. $750,000.

▲ **Mo., St. Louis** — SCHOOLS — Bd. Educ., V. Harry Rhodes, comr., School Bldgs., 911 Locust St., Zone 1, voted bonds May 26, four new schools, ten schools, addns. to two existing schools; auditorium-field house for new technical high school on Northrup Ave.; modernization existing bldgs., playground expansion $16,395,000. CD 4/27.

▲ **Mo., St. Louis**—HOSPITALS, etc.—City, Frank J. McDevitt, pres. Bd. P. Service, 304 City Hall, Zone 3, voted bonds May 26, addns., imprvs. to city hospitals and health centers, $7,507,000; addns., imprvs. to various city correctional and juvenile guidance institutions, $5,150,000; imprvs., addns. to Art Museum in Forest Park, $1,000,000 expansion of public library branch facilities, $1,000,000; fire department bldgs., imprvs., equip., $2,165,000; warehouse to house voting machines, $175,000; factory-type bldg. and equip., $150,000; street cleaning and traffic control workshops bldg., $425,000. CD 4/22.

Neb., Omaha—ADMINISTRATION—State, Bd. Control, Lincoln, admin. bldg. at school for Deaf. $500,000.

Nev., Carson City—OFFICE—State, State Bldg., Carson City, plans by Lockard & Carazza, 232 W. First St., Reno, state office on capital grounds. $750,000. CD 5/13.



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▲ **N. Y., Massapequa**—SCHOOL—Union Free School Dist. 23, referendum to be voted on June 20, elementary school. $1,500,000. Proposition rejected on previous date. CD 5/23.

O., Westerville—SCHOOL—Bd. Educ., Westerville Exempted School Dist., $500,000 bond election July 12, grade school and sites.

S. C., Clemson—FOOD INDUSTRY PLANT, etc.—Clemson College, Dr. Frank Poole, pres., Clemson, completing of food industry plant, new animal science bldg. $750,000.

S. C., Columbia—PHYSICAL EDUCATION, etc.—University of South Carolina, Donald Russell, pres., Columbia, physical education plant, planetorium, reconstr. cafeteria, new fine arts bldg. $650,000. Robert L. Sumwalt, Sr., c/o owner, staff engr.

▲ **S. D., Rapid City**—AUDITORIUM—City, City Hall, municipal auditorium, $1,500,000. CD 11/16/50.

Tex., Bloomington—SCHOOL—Bloomington Independent School Dist., Bloomington, plans by Herbert E. Kellner, 406 Austin Hy., San Antonio, high school. $900,000. CD 8/17.

Ont., Toronto—SCHOOL—Bd. Educ., 155 College St., replacing Essex St. Public School. $662,000. CD 12/13/43.

COMMERCIAL BUILDINGS

▲ **Ala., Birmingham**—SHOPPING CENTER, etc.— Roebuck Shopping Center, Inc., 2026 3 Ave. N., plans by Lawrence Whitten, Brown Marx Bldg., 20 store shopping center and parking area. $1,500,000.

▲ **Calif., Palo Alto**—MEDICAL CENTER—Bd. Trustees, Stanford University, Palo Alto, plans by Edward D. Stone, 50 E. 64 St., New York, N. Y. medical center, incl. teaching hospital, medical science bldg., outpatient bldg. classrooms, library, $6,500,000.

▲ **Calif., Vallejo**—SHOPPING CENTER—Bogdanich Bldg. Co., 4600 E. Camino Real, Santa Clara, shopping center and off-street parking area. $21,000,000.

▲ **Kan., Kansas City**—HOSPITAL—Bethany Hospital, 12 and Reynolds Sts., Kansas City, Kan., plans by Joseph Radotinsky, 1401 Fairfax Trafficway, Kansas City, Kan., 6 story hospital addn., remodeling, $1,000,000.

▲ **Mass., Tewksbury**—RESIDENTIAL—Shields, Inc., 593 Main St., Wakefield, residential development, $1,100,000

Mo., Clayton (St. Louis 24 P. O.)—BANK—First National Bank of Clayton, 7817 Forsyth Blvd., Zone 24, bank on 100x190 ft. site, incl. drive-in windows, 7724-7730 Forsyth Blvd. $500,000.

▲ **Mo., St. Louis**—SHOPPING CENTER—Mrs. Mary Goldstein, c/o United Lumber Co., 1401 S. Hanley Rd., Clayton, Zone 5, shopping center in block bounded by Natural Bridge, Newstead, Sacramento and Clarence Aves., $1,000,000.

N. J., Morristown—SCHOOL—Church of the Assumption of the Blessed Virgin Mary, c/o Neil J. Convery & Assocs., archts., 605 Broad St., Newark, 16-classroom grade school, MacCulloch Ave. $500,000.

▲ **N. J., Rockleigh** — CHILDREN'S VILLAGE — St. Joseph's Village for Dependent Children, c/o Niel J. Convery & Assocs., 605 Broad St., Newark, children's village comprising 18 buildings on 52-acre tract on Piermont Rd. $3,000,000.

N. Y., Brooklyn—APARTMENT—Sylvia Manor, Inc., 582 Merrick Ave., East Meadow, plans by George G. Miller, 125 W. 45 St., New York, Zone 19, 6 story apartment, 2951 Ocean Ave. $750,000.

▲ **N. Y., New York**—OFFICE—New California Corp., 226 W. 27 St., Zone 1, plans by Henry G. Greene, 855 Sixth Ave., New York, Zone 1, 7 story office, 216-228 W. 27 St. $2,000,000.

▲ **N. Y., New York**—OFFICE—195 Broadway Corp., 195 Broadway, plans by Chapman, Evans & Delehanty, 50 Broadway, Zone 4, 5 story office, 7-9 St. John's Lane, 2-10 York St., 268 West Broadway and 33-43 Ave. of Americas. $1,000,000.

▲ **O., Akron**—SHOPPING CENTER—Norton Village Shopping Center, c/o Edw. DeBartolo, 2620 Market St., Youngstown, shopping center. $1,000,000.

▲ **O., Barberton**—HOUSING—A. O. Austin, Barberton, 500 homes on 400 acre tract in Coventry Twp., $7,500,000.

▲ **O., Cuyahoga Falls** — HOMES — Heslop Building & Realty Co., Cuyahoga Falls, 201 homes on 45 acre site bounded by Graham Rd., Lions Park, Silver Lake Ave. and Immaculate Heart of Mary Church property. $1,000,000.

O., East Cleveland—MOTEL—Joseph Ostro, 2587 Saybrook Rd., University Heights, 1 story masonry motel 15409 Euclid Ave. $500,000.

▲ **O., Kettering**—SHOPPING CENTER—Swango & Sons, Inc., c/o Stanley Swango, 258 E. Stroop St., Dayton, shopping center with 75,000 sq. ft. or more floor space, block bounded by Shroyer and Stroop Rds., and Lamont and Royal Oak Drives, $1,000,000.

▲ **Pa., Phila.**—APARTMENTS, SHOPPING CENTER—Owner, c/o William J. McCarter & Co., Liberty Title & Trust Bldg., shopping center and 1,240 unit apartments, Stenton Ave and Willow Grove Ave., etc. $15,000,000.

▲ **Tex., Amarillo**—OFFICE, etc.—Estate Life Insurance Co., 4212 W. 9 St., plans by Edmond Jura, 1028 Bowie St., multi-story office, $1,000,000; 2 story insurance office, $350,000; apartment hotel, $750,000, just south of city limits.

▲ **Tex., Corpus Christi**—RESORT HOTEL—First National Realty & Investment Corp., c/o Jno. B. Reid, c/o Randolph Evans of Chapman, Evans & Delehanty, archt.-engr., 50 Broadway, New York, N. Y., 100-room and apartments resort hotel swimming pool, etc. north of Tulf Park on Padre Island. $1,000,000.

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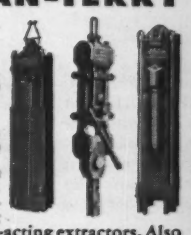

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▲ **Tex., Farmers Branch**—SHOPPING CENTER—W. W. Caruth Jr., 5803 Greenville Ave., Dallas, shopping center in area of Valwood Park Subdivision. $5,000,000.

▲ **Tex., Houston**—APARTMENTS—Las Palmas Apartments, 3921 W. Alabama St., Houston, Section No. 4, eight 2 story masonry apartments $1,000,000; Section No. 5, addnl. apartment units, $500,000; large club house, $350,000.

▲ **Tex., Houston**—HOTEL—Martin Nadelman & Assocs., c/o Shamrock Hotel, plans by Golemon & Rolfe, 5100 Travis St., Houston, and Skidmore, Owings & Merrill, 575 Madison Ave., New York 2, N. Y., 20 story hotel, $5,500,000; parking-storage garage, $500,000. Walter P. Moore, 2 Pinedale St., and B. Johnson & Assocs., 4926 Travis St., Houston, Tex., consult. engrs. CD 5/25.

▲ **Tex., Houston**—PROFESSIONAL—Memorial Hospital, 602 Lamar St., plans by Wirtz, Calhoun, Tungate & Jackson, 2506 Richton St., 14 story professional bldg., Lamar and Louisiana Sts. $4,000,000; 500-auto storage garage, $500,000. CD 1/18/52.

▲ **Tex., San Antonio** — STORE — Wolf & Marx Co., Houston and Soledad Sts., plans by Bartlett Cocke, 3501 Broadway, 60,000 sq. ft., masonry suburban department store, San Pedro Ave. and Military Hy. named "Northcrest" Addition. $1,500,000. CD 2/17/54.

Wash., Parkland—DORMITORY—Pacific Lutheran College Parkland, dormitory to house 130 students $500,000.

Wash., Seattle—SHOPPING and FOOD CENTERS—Albertson's Food Centers, Inc., 14510 Aurora Ave., shopping center, E. 127 St. and Bothell Way, $500,000; food center, E. Green Lake Way and Ravenna Blvd., $400,000.

Wis., Milwaukee—CHURCH—Trinity Presbyterian Congregation, 3381 N. 46 St., plans by Harry A. Ollrogge, 2405 W. Capitol Dr., church, $500,000-$600,000.

▲ **N. B., Dieppe**—HOUSES—Owner, c/o G. L. Gaudet, archt., 380 St. George St., Moncton, 2,900 houses in area northwest of here. $3,000,000.

Ont., Brockville—HOSPITAL WING—St. Vincent de Paul Hospital, Pine St., plans by Drever & Smith, 81 Brock St., Kingston, 4 story, bsmnt., 45x127 ft., 58-bed hospital wing, $500,000.

Ont., Niagara Falls—HOTEL—Owner, c/o N. A. Kearns, archt., 46 Main St. E., Welland, hotel, Clifton Hill at Queen Victoria Park, $572,000.

Que., Montreal—HOUSING DEVELOPMENT—Canadian Legion, Que. Prov. Command, 1191 Mountain St., housing development of apartment bldgs. for low rental, $500,000.

INDUSTRIAL BUILDINGS

▲ **Ala., Mobile**—PLANT EXPANSION—Ideal Cement Co., Denver National Bank Bldg., Denver, Colo., plant expansion. $5,500,000. CD 6/25/52.

Colo., Denver—WAREHOUSE, etc.—Pittsburgh Plate Glass Co., 2519 Walnut St., plans by Raymond H. Ervin, archt.-engr., 1500 Denver Club Bldg., 1 story, mezzanine, 158,400 ft., brick, concrete block, structural steel warehouse, salesroom and office bldg. $500,000.

Fla., Pompano—PLANT—City Products Corp., 33 S. Clark St., Chicago, Ill., ice plant and storage facility, $500,000.

▲ **Ga., Dublin**—PLANT—J. P. Stevens & Co., Dublin, 220,000 sq. ft. textile plant, $2,000,000.

▲ **Ill., North Lake City**—FACTORY, etc.—Automatic Electric Co., 1033 W. Van Buren St., Chicago, plans by The Austin Co., 510 N. Dearborn St., Chicago, Zone 10, factory and office. $10,000,000.

▲ **Me., Bath**—ASSEMBLY—Bath Iron Works Corp., Bath, 80x525 ft. structural assembly bldg. $1,000,000.

▲ **Mich., Plymouth**—PLANT—Western Electric Co., Inc., 882 Oakman Blvd., Detroit, mfg. plant 38 acre site Sheldon Rd. $6,000,000.

▲ **Mich., Port Huron**—PLANT—Electric Auto-Lite Co., W. W. Kestelott, mgr., Port Huron, 60,000 sq. ft. wire and cable plant addn. $1,000,000.

▲ **Mont., Butte** — WAREHOUSE — Safeway Co., Inc., Fourth and Jackson Sts., Oakland, Calif., plans by Norman J. Hamill, Lewisohn Bldg., Butte, grocery warehouse distr. center. $4,000,000. CD 5/5.

▲ **Neb., Superior**—PLANT—Ideal Cement Co., Denver National Bank Bldg., Denver, Colo., branch plant addn. $5,000,000.

N. C., Raleigh—PLANT—Capital Coa-Cocal Bottling Co., C. L. Thompson, treas., 121 S. West St., bottling plant, 25 acre site near Caraleigh. $500,000. CD 4/1/48.

▲ **O., Coshocton**—GENERATING PLANT—Columbus & Southern Ohio Electric Co., 215 N. Front St., Columbus, 125,000 kw generating plant on 500 acre site adjacent to coal lands, $34,000,000.

▲ **Okla., Lindsay**—PLANT—Phillips Petroleum Co., City National Bank Bldg., Houston, Tex. and Magnolia Petroleum Co., N. Esperson Bldg., Houston, Tex., ultramode gas extraction plant, $3,500,000; pipe lines, vicinity of plant, $100,000; storage and warehousing, $100,000. CD 5/19.

Okla., Ponca City—PLANT—Continental Oil Co., Ponca City, dairy wax plant. $500,000. CD 1/4/52.

Pa., New Castle—FACTORY—Johnson Bronze Co., S. Mill St., 60,000 sq. ft. factory, off Mahoning Ave. $500,000.

Tex., Arlington—PLANT—American Can Co., Lockwood and Clinton Dr., Houston, container mfg. plant. $750,000.

▲ **Tex., Athens**—PLANT—Athens Brick Co., Inc., H. B. Sampson, pres., Athens, brick mfg. plant $4,000,000.

▲ **Tex., Kilgore**—PLANT—Alliance Ware, Inc., Alliance, O. (subsidiary of American Metal Products Co., Detroit, Mich.) plant. $1,000,000.

▲ **Ont., Kingston**—PLANT—Aluminum Co. of Canada Ltd., Sun Life Bldg., Montreal, Que., aluminum plant expansion, incl. forge plant on 80-acre site, $10,000,000.

▲ **Que., Senneville**—LABORATORY—Pulp & Paper Research Institute of Canada, 3420 University St., Montreal, plans by Peter Dobush, 1364 Greene Ave., Montreal, modern laboratory near here $2,000,000.

UNCLASSIFIED

▲ **Mo., St. Louis**—DOCK, etc.—City, Frank J. McDevitt, pres. Bd. P. Service, 304 City Hall, St. Louis, Zone 3, voted $2,500,000. bonds May 26, 800 ft. dock, wharves and warehouses on Mississippi River adjacent to present municipal dock at foot of North Market Sts. CD 4/22.

▲ **Mo., St. Louis**—PARKS, PLAYGROUNDS, etc.—City, Frank J. McDevitt, pres. Bd. P. Service, 304 City Hall, Zone 3, voted bonds May 26, development, imprvs. parks and playgrounds in various parts of city, $11,000,000; constr. equipping planetarium, $1,000,000; addn., imprvs. at Zoo in Forest Park, $1,625,000, CD 4/22.

▲ **Mo., St. Louis**—STREET LIGHTING—City, Frank J. McDevitt, pres. Bd. P. Service, 304 City Hall, Zone 3, voted bonds May 26, street lighting imprvs. incl. modernization lighting on some 150 mi. main traffic arteries, $4,000,000; new residential street lighting facilities, $2,000,000. CD 4/22.

Mont., Jennings-Libby—LINE CHANGES—Great Northern Ry. Co., R. R. Manion, ch. engr., 174 E. Fourth St., St. Paul, Minn., line changes to reduce curvature between Jennings and Libby, Mont. and near Halford, Wash., $200,000.

▲ **Nebraska**—POWER PLANT—Loup Public Power Dist., Columbus, power plant addn., bldg. and generating equip., Bellevue. $1,000,000. Sargent & Lundy, 140 S. Dearborn St., Chicago, Ill., consult. engrs. CD 9/1/49.

▲ **Wash., Seattle**—TRANSMISSION LINES—Seattle Gas Co., 1507 4 Ave., Zone 1, 16 in. main transmission line from company's south gate to Georgetown Pumping Station, $746,000; from company's north city gate to Mountlake Terrace, $231,000; from Mountlake Terrace to city distr. sys., $693,500. J. F. Gary, c/o owner, supt. eng. CD 6/25.

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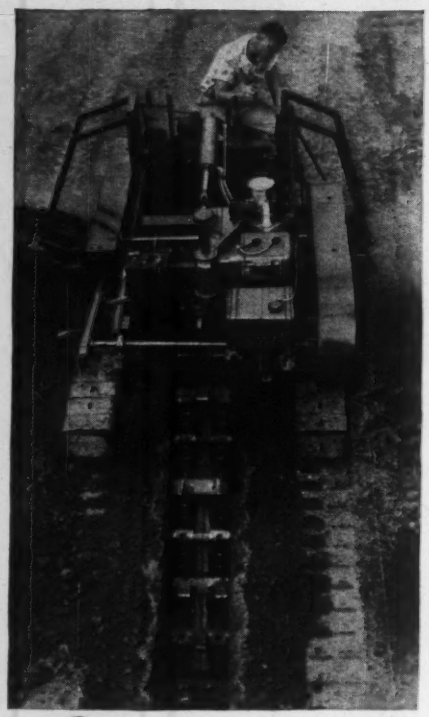

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It is self-propelled and operated by a Wisconsin V-type Model VF4 Heavy-Duty Air-Cooled Engine, with propulsion through two transmissions for 6 forward speeds and a reverse gear. Digging speed is rated from 1 ft. to 12 ft. per minute, depending on depth of ditch and soil conditions, with a maximum digging depth of 6 ft. It is equipped with a 2-way conveyor which can be stopped at any point. Non-digging travel speed, 2½ mph.

This is the Model VF4 Wisconsin Heavy-Duty Air-Cooled Engine that supplies power for the Vermeer Pow-R-Ditcher. This 3¼" x 3¼" engine has a power range of 15 to 25 hp., at 1400 to 2400 rpm. Wisconsin Air-Cooled Engines are available in a complete power range from 3 to 36 hp.

The 4-cylinder Wisconsin Heavy-Duty Air-Cooled Engine provides all the power needed for all operations. Heavy-duty engine design and construction, easy starting in any weather and dependable AIR-COOLING at all temperatures from sub-zero to 140° F. are features that assure efficient Power Performance, Long Engine Life and Low-Cost Maintenance . . . factors of prime importance in relation to the service functions of the original equipment. Reasons why you can't do better than to specify "Wisconsin Power" for your equipment.

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Power TO FIT THE MACHINE

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MILWAUKEE 46, WISCONSIN

A 8369-½I

Cuts Channels—Builds Dams in 3-YARD-BITES!

A MARION 93-M dragline swinging a 3 cubic yard bucket on an 80-foot boom is cutting a big swath in the Canadian countryside near Quebec.

It is digging channels, building levees and constructing dams in a big construction operation that will clear the way for development of asbestos deposits.

The capacity of the 93-M keeps the big job moving along rapidly. Its long boom provides casting radius that eliminates rehandling.

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Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

STREETS AND ROADS

June 21 Massachusetts

† Massachusetts—SPECIAL AAA FACILITIES—BA 6/23—U. S. Eng., 857 Commonwealth Ave., Boston, Mass., Special AAA facilities Rte. 3A, Turkey Hill Lane, Crocker Lane, Hingham and Cohasset. $800,000-$900,000. Plans deposit $50, refundable. Fay, Spofford & Thorndike, 11 Beacon St., Boston, engrs. CD 5/27.

BUILDINGS—BA

▲ Mass., Westport—SCHOOL—BA 6/23—Town, supt. Schools, Brown Office Bldg., Main Rd., high school addn., Main Rd. $2,000,000. Plans deposit $25, refundable. Israel T. Almy, 56 North Main St., Fall River, archt. J. G. Halliwell Assoc., 86 Weybosset St., Providence, R. I., mech. engrs. CD 3/4.

HEAVY CONSTRUCTION—LB & CA

▲ CONNECTICUT—State Hy. Comn., State Office Bldg., Hartford,

Mariani Constr. Co., 222 Forbes Ave., New Haven, Conn., LB, $1,129,050, grading, drainage, rein.-con. bridges, 182-17 and 182-19 UI-138 (7), UI 138 (8), Contract II, Waterbury. Bids June 2. CD 5/24.

† Frouge Constr. Co. Inc., 141 North St., Bridgeport, Conn., LB, $794,398, est. $800,000-$900,000 (3 bidders) special AAA facilities, Westport, ENG-19-016-55-142, CONNECTICUT. U. S. Eng., 857 Commonwealth Ave., Boston, Mass. Bids June 2. CD 5/24.

BUILDINGS—LB & CA

Robert E. Bessette, 4 Ivy Circle, Arlington, Mass. Separate Contracts. $640,000. 57 RESIDENCES, Middlesex Subdivision, Lexington Rd., BILLERICA, MASS.

▲ Poorvu Constr. Co., Inc., 294 Washington St., Boston, Mass. LB $1,028,444, est. $1,080,000. E-509 Contr. 1 gynasium and swimming pool, BRIDGEWATER, MASS. State, Dpt. Educ., c/o Div. Bldg. Constr., 38 Chauncy St., Boston, Mass. Bids June 3. CD 5/18.

M. I. O'Connor, 694 Bridge Rd., Northampton Mass. CA $984,000, est. $885,000. M-507 Contr. 1 INFIRMARY, State Hospital, MONSON, MASS. State, Dpt. P. Health, c/o Div. Bldg. Constr., 38 Chauncy St., Boston, Mass. CD 6/1, under LB.

Tocci Bros. Constr. Co., Inc., 38 Colonial Ave., Newton, Mass. CA $787,000. Senior High SCHOOL addn., alterations, Camaliel Bradford School, WELLESLEY, Mass. Town, Senior High School Bldg., Alice Phillips, Seaward Rd., Wellesley Hills, Mass. CD 5/18, under LB.

▲ Litchfield County Hospital, Spencer St., Winsted, Conn., rejected bids May 25, hosoital addn. and extensive remodeling Spencer St., WINSTED, CONN. LB, $1,397,663, est. $1,300,000. CD 6/1, under LB.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

June 24 Pennsylvania

STREETS AND ROADS

June 24, July 1 Pennsylvania June 28 New Jersey

BUILDINGS—BA

▲ N. Y., Brooklyn—HOUSING—BA 6/28—New York City Housting Auth., 299 Broadway, New York Zone 7, (1) foundations and appurtenances (2) general constr. (3) foundations and general constr. (4) heating and ventilating (5) electric work (6) plumbing, furnish and erect elevators for Linden Houses Proj. NYC-23 in area bounded by Stanley, Schenck, Cozine and Vermont Aves. $6,509,000. Plans deposit $75, $25 for elevators. CD 11/8.

▲ N. Y., Brooklyn—SCHOOL—BA 7/6—Bd. Educ., Bureau Constr., 42-15 Crescent St., Long Island City, Zone 1, general constr.; plumbing and drainage; heating and ventilating; electrical and lighting fixtures for P. S. 272, Seaview Ave. and E. 102 St. $1,700,-550. Plans deposit $24 general constr., $8 each others. CD 4/12.

▲ N. Y., Brooklyn—SCHOOL—BA 7/8—Bd. Educ., Bureau Constr. 42-15 Crescent St., Long Island City, Zone 1, general constr.; plumbing and drainage; heating and ventilating, electrical and lighting fixtures for new Junior High School 62, East 7th St. and Cortelyou Rd. $2,897,345. Plans deposit $40 general constr., $10 each others. CD 10/19/54, under LB.

HEAVY CONSTRUCTION—LB & CA

▲ McManus, Longe, Brockwehl, Inc., 65 Arcadia Court, Colonie, N. Y., LB $1,007,810 (2 bidders), construction work for Type 'B'' gas station and restaurant at Coxsackie, Greene Co.; East Schuyler, Herkimer Co. and South Amsterdam, Montgomery Co., NEW YORK. Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, N. Y. Bids June 2, CD 5/9;

Joseph Davis, Inc. 120 W. Tupper St., Buffalo, N. Y., LB $294,873 (six bidders), heating, ventilating and air-conditioning (New York);

A. J. Eckert Co., 1062 Central Ave., Albany, N. Y. LB $287,000 (7 bidders), plumbing work (New York);

E. G. May, 199 Elk St., Albany, N. Y., LB $214,840, (3 bidders), electric, (New York).

▲ Tully & DiNapoli, Inc., 127-50 Northern Blvd., Corona, N. Y. LB $1,306,322, (4 bidders), rehabilitation of tracks and contact rail across Jamaica Bay, Rte. 119-G, Rockaway Lines, Hamilton Beach to Hammel, Queens Boro, NEW YORK. New York City Transit Auth., 370 Jay St., Brooklyn 1, N. Y. Bids June 3. CD 5/16.

▲ Tufano Contr. Corp., 32-17 Lawrence St., Flushing, N. Y., LB $1,819,000 (brick); LB $1,323,000 (asphalt) (20 bidders), Contr. NYA 610.001, addnl. taxiways, New York International Airport, IDLEWILD, N. Y. Port of New York Auth., 111 8th Ave., New York 11, N. Y. Bids June 7. CD 6/3.

▲† Consolidated Constructors, Inc., 21 E. 40 St., New York 17, N. Y., CA $1,019,321. Schedule II, storage facilities, Plattsburg Air Force Base, PLATTSBURGH, N. Y. U. S. Eng., 111 E. 16 St., New York 3, N. Y. Bids Apr. 26. CD 4/29, under LB.

▲ Berlanti Constr. Co., 15 Oakland Ave., Harrison, N. Y. LB, $2,439,125, concrete pipe LB $2,264,000 metal pipe, Contract No. 9 westerly section of main trunk sewer, NEW BRUNSWICK, N. J. Middlesex County Sewerage Auth., 103 Bayard St., New Brunswick, N. J. Bids June 7. CD 4/25.

▲ Thompson Starrett Co., Inc., 254 W. 54 St., New York, N. Y., LB, $1,862,824, Contract 15, central treatment plant, NEW BRUNSWICK, N. J. Middlesex County Sewerage Auth., 103 Bayard St., New Brunswick, N. J. Bids June 3. CD 4/18.

▲ PENNSYLVANIA—Pennsylvania Turnpike Comn., 11 N. 4 St., Harrisburg,

Bethlehem Steel Co., Suburban Station Bldg., Phila., Pa. LB $2,517,674, superstructures of Lehigh River and Pohopoco Creek Bridges (Sec. 36-EF) Northeastern Exten., Mahoning Twp. and Parryville Boro, Carbon Co. Bids June 8. CD 5/11.

▲ PENNSYLVANIA—Pennsylvania Turnpike Comn., 11 N. 4 St., Harrisburg,

Gasparini Excavating Co., Inc., Peckville, Pa., CA $2,102,632, constr. 2.87 mi. (Sect. 37-I) Northeastern Exten. in Pittston Twp. and DuPont Boro, Luzerne Co. Bids May 18. CD 5/20, under LB.

PENNSYLVANIA—Pennsylvania Turnpike Comn., 11 N. 4 St., Harrisburg,

Sullivan Trail Coal Co., West Pittston, Pa., LB $909,-245. slushing of mine areas of Secs. 37-H and 37-I of Northeastern Exten., Luzerne Co. Bids June 1. CD 5/25.

▲† Tandy & Allen Constr. Co., 280 Hackensack Ave., Hackensack, N. J., CA, $2,328,589. 100-bed hospital, site imprvs., utilities, Dover Air Force Base, ENG-36-109-55-59; DOVER, DEL. U. S. Eng., 2653 Abbottford St., Phila., Pa. Bids May 12, awarded June 6. CD 6/2, under LB.

BUILDINGS—LB & CA

▲ Latham Enterprises, Inc., c/o Howard T. Fisher Assocs., 322 W. Washington St., Chicago, Ill. and A. H. Salkowitz, 37-60 82nd St., Jackson Heights, N. Y., archts., Owner Builds. $5,000,000. SHOPPING CENTER, 30-acre tract, Rte 9 south of Latham Traffic Circle, ALBANY, N. Y.

▲ C. E. Youngdahl & James McHugh, 2928 41st St., Long Island City 1, N. Y., LB $2,490,900 foreign steel, LB $2,493,000, domestic steel (3 bidders), for Jefferson HOUSES, (Proj. NY-5-16), Sect. II, incl. Bldg. Nos. 7 to 10 inclusive in area bounded by E. 113 St., 1st Ave., E. 112 St. and 2nd Ave., Manhattan Boro. NEW YORK, N. Y. New York City Housing Auth., 299 Broadway, New York 7, N. Y. Bids June 8.

Carl G. Ek & Son, Olean, N. Y., CA $847,432, general constr. for Salamanca HOUSING, Proj. NYS-69, Front Ave. between Memorial Park and Fern Ave., SALAMANCA, N. Y. Salamanca Housing Auth., City Hall, Salamanca, N. Y. Bids Apr. 27, awarded May 13. CD 5/3, under LB.

▲† Sovereign Constr. Co., 1181 Broadway, New York 1, N. Y., LB $1,067,066, rehabilitation BUILDINGS, FYY 55, Watervliet Arsenal, WATERVLIET, N. Y. U. S. Eng., 111 E. 16 St., New York 3, N. Y. Bids June 7. CD 5/17.

▲ United Engineers & Constructors, Inc., 1401 Arch St,, Phila., Pa., CA, Est. $6,000,000. design and construct 100,000 sq. ft. steel, masonry gypsum wall board PLANT, near MOUNT HOLLY, N. J. National Gypsum Co., 325 Delaware Ave., Buffalo, N. Y. B. H. Wills Eng. Co., 217 High St., Mount Holly, N. J., engr.

▲ George A. Fuller Co., 597 Madison Ave., New York, N. Y., CA, Est. $4,000,000. RESEARCH CENTER, 90-acre tract, PREAKNESS, N. J. U. S. Rubber Co., 1230 Ave. of Americas, New York 20, N. Y. Shreve, Lamb & Harmon, 11 W. 44 St., New York 36, N. Y., archts. CD 11/27.

▲ B. & B. Constr. Co., 1616 Covington St., Youngstown, O. CA Est. $1,250,000. SHOPPING CENTER, known as Call's Plaza, incl. 12 stores, 600 ft. front, on Wilmington Ave. from Clen-More Blvd. to Worthington Ave., NEW CASTLE, PA. Martello-Call Family, c/o Calls, Inc., New Castle, Pa.

George Hyman Constr. Co., 110 Vermont Ave. N. W., Wash., D. C. CA, $959,800. SHOPPING CENTER at intersection of New Hampshire Ave. and University Lane, Langley Park, TAKOMA PARK, MD. McCormick-Goodhart Estate, c/o Atty. Richard Wilmer, Transportation Bldg., Wash., D. C. Abbott Merkt & Co., 10 E. 40 St., New York, N. Y., archts. Awarded June 3. CD 8/6.

SOUTH

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

June 22, 29 Louisiana

STREETS AND ROADS

June 22 Louisiana

▲† La., Lake Charles—ORDNANCE STORAGE FACILITIES—BA 6/28—U. S. Eng., Box 1229, Galveston, Tex., ordnance storage facilities, Lake Charles Air Force Base, ENG-41-243-55-79. Bids 5/24 rejected. CD 6/2, under LB.

BUILDINGS—BA

▲ N. C., Acme — PULP MILL — Bids Asked — Riegel Paper Corp., 260 Madison Ave., New York 17, N. Y., pulp mill expansion. $3,000,000. J. E. Sirrine Co., 215 S. Main St., Greenville, S. C., engr.

BUILDINGS—SLC

▲ Ky., Louisville—MOTEL—Brown Hotel Co., J. Graham Brown, pres., Fourth and Broadway, soon lets contract, motel and restaurant, Goldsmith Lane and Bardstown Rd. $1,500,000. Edwin F. Wood, 8135 Forsyth Blvd., St. Louis, Mo., archt. CD 5/26.

HEAVY CONSTRUCTION—LB & CA

† R. E. Clarson, Inc., 1930 13 Ave. N., St. Petersburg, Fla., CA, $707,186, storage facilities, Pinecastle Air Force Base, ENG-08-123-55-82, ORLANDO, FLA. U. S. Eng., P. O. Box 4970 Jacksonville, Fla. Bids Apr. 26, CD 5/10, under LB.

BUILDINGS—LB & CA

▲ Lynne Investment Corp., 4479 Connecticut Ave. N. W., Wash., D. C. Own Forces. $5,000,000. SHOPPING CENTER at Seven Corners, FAIRFAX, VA.

▲ A. B. Newton & Co., Vidalia, Ga., LB, $1,429,643. Buffington Elementary SCHOOL; Macedonia Elementary SCHOOL; Hickory Flat Elementary SCHOOL; Oak Grove Elementary SCHOOL; Holly Springs Elementary SCHOOL; Free Home Elementary SCHOOL; Cherokee County Training SCHOOL; Cherokee Country High SCHOOL, Woodstock Elementary SCHOOL; Ball Ground Elementary SCHOOL; Clayton Elementary SCHOOL, CANTON, GA. State School Bldg. Auth., 41 Exchange Pl. S. E., Atlanta Ga. Bids June 7. CD 4/25.

▲ J. S. Ellard, Irondale, Ala., CA, Est. $4-$5,000,000. HOUSING near BIRMINGHAM, ALA. Rogers Investments, Inc., 3100 N. 27 St., Birmingham, Ala. Caldwell & Harmon, 4212 Avenue V, Birmingham, Ala., archts.

▲ Rust Eng. Co., 575 6 Ave., Pittsburgh, Pa., CA, Est. $2,500,000. FURNACE for cold steel production, BIRMINGHAM, ALA. Connors Steel Div., H. K. Porter Co., Inc., 5000 Powell Ave., Birmingham, Ala.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

STREETS AND ROADS

June 21, 22 Michigan

BUILDINGS—BA

▲ Ill., Norridge—SHOPPING CENTER—Bids Asked—E. A. Juzwik & Co., 10 S. La Salle St., Chicago 3, Ill. shopping center. $5,000,000. Barancik & Conte & Assocs., 919 N. Michigan Ave., Chicago, Zone 11, archts. CD 3/8.

▲ O., Cincinnati—CHURCH, etc.—Bids Asked—Christ Church, 318 E. 4 St., church bldg. and remodel parish house, 4th St. $1,500,000. David B. Maxfield, Oxford, archt.-engr. CD 4/27/54.

BUILDINGS—SLC

▲ Ill., Great Lakes — HOUSING — Ninth Naval Dist., Great Lakes Naval Training Station, Great Lakes, soon lets contract construct, manage and finance 264-unit housing. $1,000,000. J. Fletcher Lankton, First Natl. Bank, Peoria, archt.

HEAVY CONSTRUCTION—LB & CA

▲ ILLINOIS — State Div. Hys., Centennial Bldg., Springfield,

Thos. McQueen & Co. and W. J. Sheppard & Co., 1313 S. Circle Ave., Forest Park, Ill., CA, $1,391,749 c. conc. 0.51 mi. F. A. 131 (Congress St. Expressway) from Ashland to Racine Ave., Chicago, Cook Co. Bids May 20, awarded June 6. CD 5/26, under LB.

▲† Sunmer Sollitt Constr. Co., 307 N. Michigan Ave., Chicago 1, Ill., CA $1,568,000. Boiling Reactor Experimental Project, LEMONT, ILL. Atomic Energy Comn., P. O. Box 59, Lemont, Ill. Awarded May 31. CD 5/18, under LB.

BUILDINGS—LB & CA

▲ W. E. O'Neil Constr. Co., 2751 Clybourn St., Chicago, Ill., CA $1,000,000. OFFICE, CHICAGO, ILL. Illinois Bell Telephone Co., 206 W. Washington St., Chicago 6, Ill. Bids Apr. 5, awarded June 2. CD 3/28.

▲ Plastercraft, Inc., 2756 Ogden Ave., Chicago, Ill., CA, $3,000,000, 350,000 sq. ft. WAREHOUSE, DES PLAINES, ILL. Butler Brothers, 111 N. Canal St., Chicago 6, Ill. Awarded May 27. CD 5/18.

▲ Superior Constr. Co., 1900 E. 7 St., Gary, Ind., CA, $1,000,000. DIAL EXCHANGE BLDG., HINSDALE, ILL. Illinois Bell Telephone Co., 206 W. Washington

St., Chicago 6, Ill. Bids May 5, awarded June 1. CD 4/27.

▲ **Robt. D. Malone,** 4942 Milwaukee Ave., Libertyville, Ill., Own Forces, **$3,500,000.** 300 HOMES, Libertyville Highlands, LIBERTYVILLE, ILL. A. Jachtleven, 7925 S. Halsted St., Chicago, Ill., archt.

Ehler & Wenborg Builders, Inc., 8 E. McDonald Rd., Prospect Heights, Ill. Own Forces, **$2,000,000.** 80 HOMES, PROSPECT HEIGHTS, ILL.

▲ **Powers Constr. Co.,** 125 Marion St., Oak Park, Ill., CA **$3,380,844,** Lyons Twp. HIGH SCHOOL No. II, WESTERN SPRINGS, ILL. School District 204 c/o Lyons High School, LaGrange, Ill. Bids May 10, awarded May 26. CD 5/25, under LB.

Reniger Constr. Co., 127 North Cedar St., Lansing, Mich. CA **$808,759.** general contract Moores Park STATION addn., LANSING, MICH. City, O. E. Eckert, Bd. Light Comrs., 116 W. Ottawa St., Lansing, Mich. CD 6/2, under LB.

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

June 23 Kansas **June 24 Minnesota, North Dakota**

STREETS AND ROADS

June 21 Nebraska **June 23 Kansas**
June 24 Minnesota, North Dakota

BUILDINGS—BA

▲ **Tex., Odessa**—HIGH SCHOOL—BA 7/12—Ector County Independent School Dist., c/o W. C. Todt, pres., Odessa, brick, tile, concrete, steel Junior-Senior High School. $1,200,000. Plans deposit $25 general constr., $15 mechanical and electrical. Wilson, Patterson & Assocs., 601 Bailey Bldg., Fort Worth, archts. CD 1/5.

HEAVY CONSTRUCTION—LB & CA

MINNESOTA—State Hy. Dpt., 1246 University Ave., St. Paul,

McCree & Co., New York Bldg., St. Paul, Minn. CA **$907,094.** c. conc. 11.2 mi. between North St. in Jackson and 1 mi. south of Bergen, Jackson Co. CD 5/19.

▲ **NORTH DAKOTA**—State Hy. Dpt., Bismarck,

Schultz & Lindsay Constr. Co., 621 1st Ave. N., Fargo, N. D., CA **$1,026,765.** grading, base, A. C. surf. 13.13 mi. U. S. 2 and 85 from Williston north, Proj. F-393 (18) and U-393 (19), Williams Co. Bids Apr. 29. CD 5/6 under LB.

NORTH DAKOTA—State Hy. Dpt. Bismarck,

Northern Imprvt. Co., 633 First Ave. N., Fargo, N. D., CA **$635,360,** base, b. conc. surf. 19.969 mi. Proj. F-227 (5), Ward and Mountrail Counties. Bids May 27. CD 6/2, under LB.

▲ **KANSAS**—Kansas Turnpike Auth., 2306 W. 10 St., Topeka,

KTA—**Clarkson Constr. Co.,** 4133 Gardner St., Kansas City, Mo. LB **$929,932.** grading 5.98 mi., Shawnee Co.;

KTA—**Grasshans & Petersen, Inc.,** Marysville, Kan. LB **$556,650.** grading, drainage 4.73 mi. Shawnee Co. Bids June 3. CD 5/25.

▲ **Corrothers Constr. Co.,** Paola, Kan., LB **$1,227,410,** est. $1,250,000. new 16 m.g.d. filter plant, basins and equipment, TULSA, OKLA. City, City Hall, Tulsa, Okla., Bids May 13. CD 5/3.

▲† **George A. Fuller Co.,** 412 Gibraltar Bldg., Dallas, Tex., LB **$4,874,268,** est. $4,900,701, 250-500 bed hospital and facilities, Carswell Air Force Base, ENG-41-443-55-123, FORT WORTH, TEX. U. S. Eng., 100 W. Vickery Blvd., Fort Worth Tex., Bids June 7. CD 4/27.

▲† **Fred R. Combe & Co.,** 2901 Aldridge Ave. S., Minneapolis, Minn. LB **$1,317,834,** est. $1,361,837. (2 bidders). hangars, Glasgow Air Force Base, GLASGOW, MONT. U. S. Eng., City-County Airport, Walla Walla, Wash. Bids June 7. CD 5/4.

▲ † **Robert McKee General Contractor, Inc.,** Box 651, Albuquerque, N. M., CA **$730,700,** Schedule A, storage facilities for ordnance area, for Walker Air Force Base, Roswell, N. M.; CA **$662,500,** Schedule B, storage facilities for ordnance storage area, Biggs Air Force Base, El Paso, Tex., Inv. No. ENG-29-005-55-106, ROSWELL, N. M. and EL PASO, TEX. U. S. Eng., Box 1538, Albuquerque, N. M. Bids May 27. CD 6/7, under LB.

BUILDINGS—LB & CA

B. Neitge Constr. Co., Mankato, Minn. CA **$638,000.** general contract 5 story CONVENT addn. to main bldg., MANKATO, MINN. Our Lady of Good Counsel Academy, Sisters of Notre Dame, Mankato, Minn. Gaul & Voosen, 228 E. Superior St., Chicago, Ill., archts.

▲† **MacDonald Constr. Co.,** 1310 S. Grand Blvd., St. Louis 4, Mo. CA **$3,277,207.** rehabilitation, modification of BUILDING 205 at St. Louis Ordnance Plant, vicinity of 4300 Goodfellow Blvd., ST. LOUIS, MO. U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo. Bids May 25, awarded June 2. CD 6/1, under LB.

▲† **Peter Kiewit Sons Co.,** 1024 Omaha National Bank Bldg., Omaha, Neb. LB **$17,891,000.** (7 bidders) 1,000 bed N.P. HOSPITAL, TOPEKA, KAN. Veterans Administration, Munitions Bldg., Wash., D. C. Bids June 7. CD 4/1.

▲ **J. E. Morgan & Sons,** Box 6029, Dallas, Tex., CA **$1,136,807.** TEMPLE, DALLAS, TEX. Temple Emanu-El, Harwood and South Blvd., Dallas, Tex. Bids May 17. CD 5/25, under LB.

▲ **Linbeck Constr. Corp.,** 2720 Saint St., Houston, Tex. CA **$2,875,000,** 260x1,000 ft., 318,088 sq. ft. masonry, steel WAREHOUSE and SERVICE CENTER and covered dock area containing 42,646 sq. ft.; CA **$385,000,** TRUCK SERVICE SHOP and GARDEN SHOP; CA **$71,000,** 20-acre site work of general earthwork, grading; CA **$245,500,** 5-acre rein.-con. paving, surrounding truck-garden shops, HOUSTON, TEX. Grand total $3,576,500. Sears, Roebuck & Co., 4207 Main St., Houston, Tex. Bids Apr. 26. CD 4/5.

▲ **Tellepsen Constr. Co.,** 1710 Telephone Rd., Houston, Tex. CA **$5,000,000.** 16 story APARTMENT, Hermann Dr., overlooking Hermann Park, HOUSTON, TEX. Investing Syndicate, c/o Wyatt C. Hedrick, archt.-engr., 5201 Fannin St., Houston, Tex. CD 6/6.

▲ **Storey, Davis & McCracken,** Odessa, Tex., CA Approx. **$1,000,000.** 10 story OFFICE, tower type of constr. with steel frame, incl. large paved parking area, appurtenances, ODESSA, TEX. MSD Rentals, Odessa, Tex. CD 6/7.

Tellepsen Constr. Co., 1710 Telephone Rd., Houston, Tex., CA **$688,500,** main SHOPPING CENTER, PASADENA, TEX. Allendale Shopping Center Corp., c/o T. E. Richards, Jr., Commerce Bldg., Houston, Tex. CD 6/6.

▲ **M. W. Kellogg Co.,** Esperson Bldg., Houston, Tex. CA 20,000 bbl. SUPERREFINING UNITS to produce home heating oils, PORT ARTHUR, TEX. Gulf Oil Co., Port Arthur, Tex. CD 3/22/51.

▲ **O'Rourke Constr. Co.,** Box 7557, Houston 7, Tex. CA Approx. **$1,110,000.** 2 story, 37x360 ft. rein.-con. fdn. and floors, roof slabs, rein.-con. yards paving, RECTIFIER STATION BLDG., ROCKDALE, TEX. Alcoa Aluminum Co. of America, Commerce Bldg., Houston, Tex., and c/o J. D. Harper, Rockdale Works, Rockdale, Tex. CD 3/1.

Riedesel-Lowe Constr. Co., 501 E. 15 St., Cheyenne, Wyo., CA, **$750,000.** 4 story 44,000 sq. ft. Ohio Oil OFFICE addn., CASPER, WYO. Ohio Oil Co., Casper, Wyo. Awarded About 5/28.

FAR WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

July 6 California

STREETS AND ROADS

June 24, July 6, 7, 13 California

▲† **Calif., San Bernardino**—APRON, etc.—BA 6/29—U. S. Eng., 751 S. Figueroa St., Los Angeles, parking apron, stabilizing taxiway shoulders Norton Air Force Base, ENG-04-353-55-169. $1,000,000. CD 8/11.

BUILDINGS—BA

▲ **Wash., Vancouver**—SCHOOL—BA 6/26—School District 37, Vancouver, rein.-con., frame Junior High School in McLoughlin Heights Area. $1,200,000. Plans deposit $50. McCoy & Bradbury, 7007 Hy. 99 N., archts. CD 5/18.

▲ **Calif., Palo Alto**—SCHOOL—BA 6/29—Palo Alto City Unified School Dist., Box 450, Elwood W. Cubberley High School. $1,600,000. Plans deposit $100. Clark & Stromquist, 321 Channing Ave., archts. CD 6/15/54.

BUILDINGS—SLC

▲ **Wash., Spokane**—SERVICE CENTER—Washington Water Power Co., W 825 Trent St., soon lets contract, service center and first floor of 5 story office bldg. $1,500,000. CD 4/16/54.

HEAVY CONSTRUCTION—LB & CA

† **Macco Corp., Morrison-Knudsen, Inc., River Constr. Co.,** 14409 S. Paramount Blvd., Paramount, Calif., LB **$823,900.** breakwater, Crescent City, Del Norte Co., CIVENG-55-19, CALIFORNIA. U. S. Eng., 180 New Montgomery St., San Francisco, Calif. CD 10/13.

▲† **Swinerton & Walberg,** 200 Bush St., San Francisco, Calif., CA **$2,028,000,** 3 story 183x345 ft. steel frame, electronics overhaul bldg., Naval Air Station, NOY 87428, Spec. 45261. ALAMEDA, CALIF. Twelfth Naval Dist., San Bruno, Calif. CD 11/5.

BUILDINGS—LB & CA

▲† **Rubenstein Constr. Co.,** 1012 North 27 Ave., Phoenix, Ariz., CA **$4,229,000.** construct, manage and finance 500-unit HOUSING at Army Electronic Proving Grounds, FORT HUACHUCA, ARIZ. U. S. Eng., 75 New Montgomery St., San Francisco, Calif. Bids May 27. CD 6/2, under LB.

▲ **McComber Constr. Co.,** 8818 Melrose Ave., Los Angeles, Calif., LB **$1,783,760,** (7 bidders) 200-room ultra-modern HOTEL, RENO, NEV. Blitz & Mueller, c/o F. W. Green, archt., 5255 Lakeside Dr., Reno, Nev., archt.

▲† **Vinnell Co., Inc.,** 1145 Westminster Ave., Alhambra, Calif., CA, Est. over **$1,000,000.** Nuclear RESEARCH LABORATORY, Canoga Park west of San Fernando Valley, for Atomic Energy Comn., CALIFORNIA. North American Aviation, Inc., 12214 Lakewood Blvd., Downey, Calif. Bids May 9.

▲ **Ivan Wells & Sons,** 2368 Houston St., Anaheim, Calif., Owner Builds, **$1,090,000.** 109 frame, stucco DWELLINGS, Gilbert, Aetna and Houston Sts., ANAHEIM, CALIF.

† **J. A. McNeil Co.,** 3155 W. Mission Rd., Alhambra, Calif., CA, **$838,874,** barracks at Nebo and Yermo Areas, Marine Supply Center, NOY 85187, Spec. 44762, BARSTOW, CALIF. Dpt. Navy, Eleventh Naval Dist., San Diego, Calif. Bids May 5. CD 12/11/52.

▲ **Whiting Constr. Co.,** 450 S. Beverly Dr., Beverly Hills, Calif., CA **$1,209,000.** 167 frame, stucco DWELLINGS, Foncea Ave. and Manzario Rd., BELLFLOWER, CALIF. Western Projects Corp., 3842 Wilshire Blvd., Los Angeles, Calif. Palmer & Krisel, 11757 San Vicente Blvd., Los Angeles, Calif., archts.

▲† **M. H. Golden,** 3485 Noell St., San Diego, Calif., CA **$1,227,000.** enlisted men's BARRACKS, Naval Amphibious Base, NOY 85230, Spec. 44805, CORONADO, CALIF. Dpt. Navy, Eleventh Naval Dist., San Diego, Calif. Bids May 27. CD 6/7, under LB.

Glover Constr. Co., 1273 Hearn St., Santa Rosa, Calif., CA **$659,850.** 50-bed tuberculosis WING addn. to Humboldt County Community Hospital, EUREKA, CALIF. Humboldt Co., Court House, Eureka, Calif. Bids Apr. 11, awarded June 3. CD 5/3.

McDonald Brothers, 4496 N. Fresno St., Fresno, Calif., CA **$648,000.** 72 HOME sub-division within Highland Village, FRESNO, CALIF. Whitmas Constr. Co., 2842 E. Holland St., Fresno, Calif.

▲ **Campbell Constr. & Equipment Co.,** 1150 Folsom St., San Francisco, Calif., CA **$1,000,000.** concrete Providence HOSPITAL addn., OAKLAND, CALIF. Providence Hospital, 378 30 St., Oakland, Calif. CD 10/7.

Barrett Constr. Co., 1800 Evans Ave., San Francisco, Calif., LB **$934,800.** Ridgepoint No. 2 SCHOOL, SAN FRANCISCO, CALIF. City and San Francisco Co., Dpt. P. Wks., City Hall, San Francisco, Calif. Bids June 1. CD 5/11.

Henderson Constr. Co., 33 Ritch St., San Francisco, Calif., CA **$669,000,** Commodore Stockton SCHOOL, SAN FRANCISCO, CALIF. Dpt. P. Wks., City Hall, San Francisco, Calif. Bids May 18, awarded June 3. CD 5/24, under LB.

Texas Co., 922 S. Broadway, Los Angeles, Calif., Owner Builds, **$677,460,** 4 metal OIL PROCESS BLDGS., 2101 E. Pacific Coast Hy., WILMINGTON, CALIF. A. S. Patric, c/o owner, engr.

R & F Development Co., 1033 Foothill Blvd., La Canada, Calif., Owner Builds, **$699,075.** 75 frame, stucco DWELLINGS, **California and Mt. View Sts.,** Tract 4541, YUCAIPA, CALIF.

CANADA

BUILDINGS—BA

Que., Valcartier—MESSES—BA 6/28—Defence Constr. Ltd., 56 Lyon St., Ottawa, Ont., 2 messes at army camp. $850,000. Plans deposit $100.

▲ **Ont., Kingston**—HOSPITAL WINGS—BA 7/20—Dpt. P. Wks., Parliament Bldgs., Toronto, 500-bed hospital wings at Rockwood Hospital, $1,000,000. Plans deposit $100. L. V. Gallagher, 155 Brock St., and Drever & Smith, 81 Brock St., archts. CD 5/13/53.

BUILDINGS—SLC

▲ **Que., Montreal**—MEDICAL CENTER—Medical Centre Realty Inc., 1470 Bleury St., soon lets contract constr. 5 story Medical Center, Cote St. Catherine Rd. and 7 story on Decelles Ave., 52x312 ft., steel frame, concrete fdn. $2,500,000. Max Roth, 1015 Sherbrooke St. W., archt.

HEAVY CONSTRUCTION—LB & CA

▲ **American Telephone & Telegraph Co.,** 32 Avenue of Americas, New York 13, British Post Office, London, England and Canadian Overseas Telecommunication Corp., 69 Yonge St., Toronto, Ont., Own Forces **$40,000,000.** twin cables from Clarenville, NEWFOUNDLAND to Oban, SCOTLAND;
Simple Wire & Cable Co., 79 Sidney St., Cambridge 39, Mass., and **Submarine Cables Ltd.,** Greenwich, England, CA cable (Newfoundland-Scotland);
Western Electric Co., Hillside, N. J., CA, deep-sea repeaters (Newfoundland-Scotland).

BUILDINGS—LB & CA

▲ **Poole Constr. Co. Ltd.,** 10503 109 St., Edmonton, Alta., CA, **$1,250,000,** ADMINISTRATION BLDG. and constr. CAMP for 800-man, HINTON, ALTA. North Western Pulp & Power Co., 515 8 Ave., Calgary, Alta. H. A. Simons Ltd., 16 E. Hastings St., Vancouver, B. C., and Stadler, Hurter & Co., 1117 St. Catherine St. W., Montreal, Que., engrs.

▲ **International Constr. Inc.,** 61 Ave. L'Abord a Plouffe, Montreal, Que., Owner Builds, **$10,000,000.** HOUSING DEVELOPMENT, incl. 700-units and shopping center, near Millidgeville Airport, ST. JOHN, N. B.

Bryers Constr. Co. Ltd., 21 Main St. E., Hamilton, Ont., CA, **$854,960** HOUSING at Canadian Army Base, CAMP BORDEN, ONT. Central Mortgage & Housing Corp., 40 Eglinton Ave. E., Toronto, Ont. Bids May 10, awarded June 1. CD 4/25.

▲ **Pigott Constr. Co. Ltd.,** Pigott Bldg., Hamilton, Ont., CA $1,157,440, Federal Govt. PUBLIC Bldg., CHATHAM, ONT. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. Bids Apr. 27, awarded June 1. CD 5/4, under LB.

▲ **Ain & Zakuta, Ltd.,** 6910 Wiseman Ave., Montreal, Que., CA, **$5,000,000.** 350-unit HOUSING DEVELOPMENT, west of Lafleur St. between Des Obelets and Inc. c/o contractor. Mayerovitch & Bernstein, 1500 St. Catherine St. W., Montreal, Que., archts. Awarded Jean Milot Sts., MONTREAL, QUE. La Salle Heights, May 30.

U. S. POSSESSIONS

BUILDINGS—LB & CA

▲† **Carribbean Engineering Corp.,** Charlotte Amalie, St. Thomas, Virgin Islands, LB **$1,156,752.** Proj. No. 21, ELEMENTARY-JUNIOR HIGH SCHOOL and ELEMENTARY SCHOOL, ST. CROIX, VIRGIN ISLANDS. Govt. Virgin Islands, P. Wks. Comn., Charlotte Amalie, St. Thomas, Virgin Islands. Bids May 18. CD 3/30.

(Proposal Advertisements see pp. 139 to 142)

WELDED
STEEL
PLATE
FABRICATION

- Boiler Casings
- Boiler Breechings
- Flues and Ducts
- Condenser Shells
- Condenser Piping
- Heavy Turbine Housings
- Fan and Blower Housings
- Dust Collector Housings
- Industrial Gas Mains
- Expansion Joints
- Hoppers and Bunkers
- Tanks and Vats
- Pressure Vessels
- Wind Tunnels
- Crane Bridge Girders
- Trolley Frames and Trucks
- Rigid Frames
- Roll-Over Fixtures
- Tank Turrets
- Gun Mounts
- Heavy Truck Bodies
- Engine Frames and Bases
- Crawler Frames
- Press Platens and Beds
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STRUCTURAL STEEL

- For Buildings, Bridges and Special Purpose Structures
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UNIT PRICES

Louisiana Swimming Pool

A 70x120-ft swimming pool and bathhouse at Alexandria, La. Air Force Base will cost the Corps of Engineers, Little Rock, Ark., District $158,706. This bid by Barnet Brezner is 7% below the engineer's estimate and lowest of five submitted.

The biggest differential in the bidding was the Brezner $132,000 lump sum for swimming pool and bathhouse, $21,297 below second low. This item includes a water recirculation system, flood lighting and concrete pool deck walkways. The treatment system will have pressure filters with a design flow rate of 4 gpm per sq ft of filter service, based on a complete turnover period of 7 hrs. Treating and filtering capacity of filters for a 7-hr turnover period will be 356,000-gal. Equipment, all contractor-furnished, includes an 850-gpm, 40-hp pump unit, a 300-gal surge tank, a chlorinator, and pool cleaner.

The 42x90-ft concrete block masonry bathhouse is to have concrete and tile floors, concrete roof deck with 5-ply built-up roofing, and equipment. Concrete requirements are: class AA for pool walls and floor slab, B for work not otherwise specified, and C for 4-, 6-, and 8-ft walks. Minimum compressive strength at 28 days must be 3,750 psi for class AA, 2,500 psi for B, and 2,000 psi for C. Cement content can be portland alone (Federal specification SS C 192) or a blend of not to exceed 1 bag of natural or slag to 4 bags of portland.

Minimum prevailing wage rates include: laborers $1.10 per hr, air tool operators $1.30, cement masons $1.975, steam fitters $2.96, tile setters $2.50; truck drivers under 1½-t $1.10, over 1½-t $1.25; power equipment operators, heavy duty $2.85, light duty $2.435; medium duty $2.575.

1C	Barnet Brezner, Alexandria, Louisiana	$158,706
2	Sandel & Lastrapes, Shreveport, Louisiana	172,877
5	Port City Const. Co., Inc., Lake Charles, La.	260,935
EE	Corps of Engineers, Little Rock, Arkansas	170,689

Time allowed for completion: 210 calendar days

Bids: 4-20-55 Items	Unit	Quantity	Unit Prices 1 C	 2
Swimming pool & bath hse	ls	.....	$132,000	$153,297
Gas line	ls	.....	550.00	308.00
Water lines	ls	.....	600.00	1,030
Sanitary sewer	ls	.....	500.00	196.00
Standard manhole	ea	6	175.00	334.00
Exterior electrical work	ls	.....	2,700	2,803
Concrete headwall	ls	.....	100.00	172.00
Conc service drive, parking area, curb	cy	375	33.00	5.00
Gradg & subgrade prep	ls	.....	1,000	1,555
Concrete sidewalks	sy	480	3.60	3.50
Storm drain 12"	lf	1,447	2.80	4.00
Pipe culvert 18"	lf	40	3.50	5.60
Fencing, incl gates	lf	590	2.90	2.92
Common ryegrass & fert	ls	.....	100.00	111.00
Bermuda grass seed, fert	ls	.....	100.00	111.00

Kansas Turnpike Bids Carry Contingencies

Kansas Turnpike Authority will pay $687,973 or $96,745 per mi for 7.11 mi. of grading and drainage work in Lyon County. The award went to Amis Construction Co., Oklahoma City, second low of seven bidders. The $678,828 low bid of J. D. Armstrong, Ames, Iowa, was contingent on award of another project on which he was not low. Three of the bids carried contingencies including the high bid.

General consultant for the project is Howard, Needles, Tammen & Bergendoff. Design engineers for this section are Servis, Van Doren & Hazard, Topeka, Kansas. Gale Moss is General Manager for the Turnpike Authority; L. W. Newcomer is engineer.

Minimum wage rates for labor are $1.00 per hr for unskilled, $1.20 intermediate, and $1.60 skilled.

Bidders include:

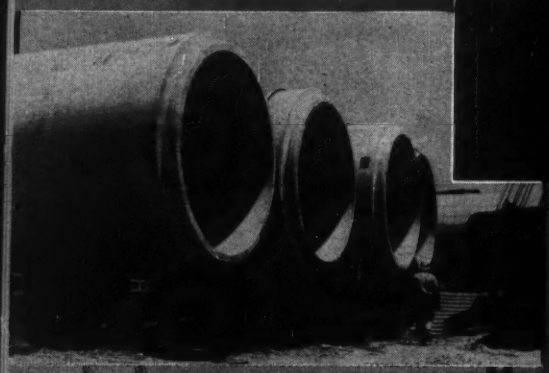
1C	Amis Const. Co., Oklahoma City, Okla.	$687,973*
	Amt if awarded in combination with Proj 6-23-E-1 (not accepted)	665,333
2	Ralph Green & W. L. Groesbeck, Des Moines, Iowa	700,227
7	S.J. Groves & Sons, Minneapolis, Minn.	829,192

Completion time: 170 days; liquidated damages $300/day

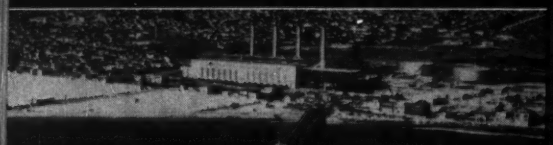
Bids: 4-1-55 Items	Unit	Quantity	Unit Prices 1 C	 2
Const perm barricade	lf	55	$5.00	$7.50
Excavation, common	cy	1,132,000	0.29	0.293
rock	cy	160,000	0.29	0.293
Remove existing structs	ea	4	125.00	500.00
Compaction earthwork	cy	1,111,000	0.05	0.05
Water	Mgal	11,100	2.00	2.00
Manip, cl A subgr modif	Sta	20	20.00	30.00
Aggregate, subgr modif	cy	275	4.00	2.75
Temporary fence, type 1	lf	17,200	0.22	0.25
2	lf	5,900	0.36	0.40
Compact subgr in cuts	cy	59,200	0.28	0.22
Const detour	ls	1	5,000	5,600
Maint traffic	ls	.....	1,000	1,000
Concrete cl A	cy	1,667.7	42.50	45.50
Reinforcing steel	lb	174,350	0.13	0.135
Met arch culv P 14 ga 18"x11"	lf	1,242	6.00 37.00	6.20 30.00
end section 18"x11"	ea	24		
Corr met P 15" 14 ga	lf	1,574	4.50	5.60
Metal end section 15"	ea	21	34.00	30.00
Corr met P 18" 14 ga	lf	328	5.50	5.75
Metal end section 18"	ea	12	36.00	30.00
Reinf conc culv P 24"	lf	780	6.50	6.80
Corr met P 24" 14 ga	lf	74	6.00	7.25
Metal end section 24"	ea	6	54.00	50.00
Corr met P 30" 14 ga	lf	62	8.00	9.00
Metal end section 30"	ea	3	76.00	75.00
RCCP, ES, 30"	lf	208	10.50	11.00
RCCP 36"	lf	270	12.50	11.80
Metal arch culv P 36"x22" 14 ga	lf	318	9.50	10.00
end section 36"x22"	ea	6	80.00	75.00
culv P43"x27" 12 ga	lf	178	14.50	14.75
RCCP 48"	lf	286	19.50	18.40
RCCP, ES, 48"	lf	256	21.50	19.50
Metal arch culv P 50"x31"	lf	328	17.00	17.40
end section 50"x31"	ea	6	135.00	97.00
culv P 58"x36" 12 ga	ea	142	20.00	20.00
RCCP, 60"	lf	224	27.00	26.00
Sectional plate P 72"	lf	344	42.00	42.00
Guide posts	ea	8	6.00	5.00
Met P underdrn perf 6"	lf	1,100	7.50	7.00
non-perf 6"	lf	1,250	4.00	5.50
Inlet type A	ea	38	106.00	125.00
B	ea	7	106.00	125.00
Dumped stone riprap	cy	4,200	2.00	2.35
Conc ditch lining 5"	sy	375	6.00	6.50
Ditch checks	lf	140	5.00	6.50
CMP 12 ga 36" jacked	lf	64	40.00	35.00
Metal end section 36"	ea	2	126.00	135.00
CMP 10 ga 48" shop strutted	lf	68	24.00	23.00

* Award amount

underground or underwater



Temporary trestle provides runway for gantry crane. Pipe sections are lowered into position through trestle.



AMERICAN'S REINFORCED CONCRETE PIPE OFFERS EQUAL ADVANTAGES IN PERMANENCE, ECONOMY AND EASE OF INSTALLATION

For an important second subaqueous installation at the Redondo Steam Station, Southern California Edison Company again chose American's 120" precast reinforced concrete pipe with rubber gasket joints. In the parallel intake and discharge lines, ocean water is circulated at an average flow of 400 second-feet as part of the steam condensing system.

In addition to sustained hydraulic capacity, corrosion resistance and freedom from maintenance, this project demanded a pipe easy and accurate in placement with maximum joint flexibility. All of these requirements were amply and safely met with American's subaqueous pipe.

Whether your pipeline is to be underground or underwater, you'll find a class of American pipe designed and manufactured specifically to meet your needs. Take advantage of our 45 years of experience in water supply line engineering . . . write for any desired information to P. O. Box 3428, Terminal Annex, Los Angeles 54, California.

American PIPE AND CONSTRUCTION CO.

Concrete pipe for main water supply lines, storm and sanitary sewers, subaqueous pipe lines.

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model HU

only these **2** completely different

PAYLOADER TRACTOR-SHOVELS

offer you all these features...

1½ CU. YD
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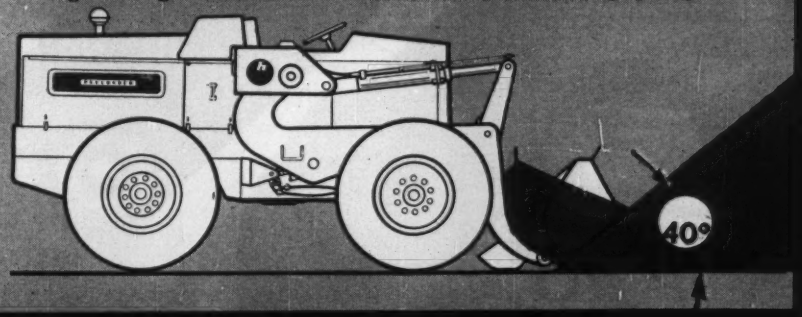
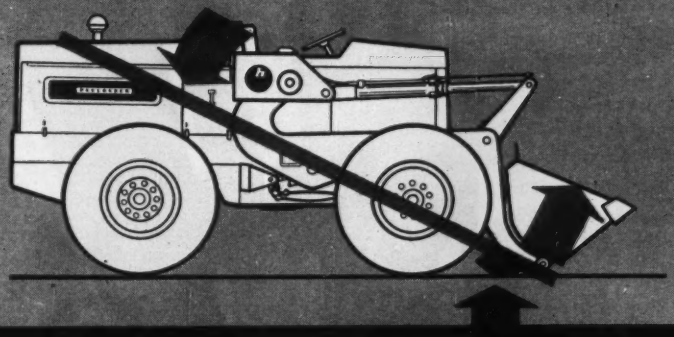
40 DEGREES BREAKOUT AT GROUND LEVEL

You can get HEAPED BUCKET LOADS and you get them FASTER and EASIER WITH THIS NEW BUCKET ACTION. Most important of all—you KEEP BIGGER PAYLOADS—because the bucket can be tipped back a full 40 degrees at ground level before it is raised, eliminating spillage.



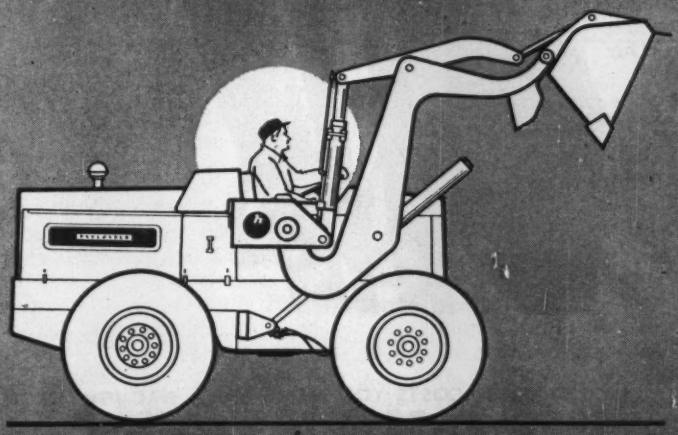
POWERFUL PRY-OUT ACTION

Tremendous pry-out force is obtained by using the breakout pads on the ground as a fulcrum for leverage. The load forces opposing the pry-out action are thus transferred to the ground through the pads instead of to the axle, wheels and hydraulic system of the machine.



SAFETY AND STABILITY

Underslung boom-arm design keeps moving members out of operator's reach at all positions—without using safety guards and screens. Longer wheel base and close, low, load-carry position provide maximum stability and balance.



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HOUGH-QUALITY
HOUGH-PERFORMANCE

more horsepower

per bucket capacity than any other wheel tractor-shovel. Either gasoline or diesel power available.

easy to operate

Fullest operator visibility for safe, fast maneuvering; power-steering; minimum number of control levers. Foam-rubber molded seat and back cushions. Seat adjustable for operator comfort. Longer wheelbase and better balance add to riding comfort.

accessibility

Unusual accessibility for servicing and maintenance. Battery and oil reservoir are located under an easy-access cover just behind driver's seat. Sealed grease fittings. Exterior hydraulic line outlet provided for easy addition of hydraulically-operated accessories.

torque-converter drive

in conjunction with 4-speed, full-reversing transmission provides precise, easy control and the widest possible range of speeds for both forward and reverse. Acts as a shock-absorber for the entire power train.

other features

Closed, pressurized hydraulic system to keep dirt and air out of oil; powerful hydraulic brakes; double-acting hydraulic cylinders and chrome-plated piston rods; 12-volt electric systems on gas-powered models; forward and backup driving lights; tail lights.

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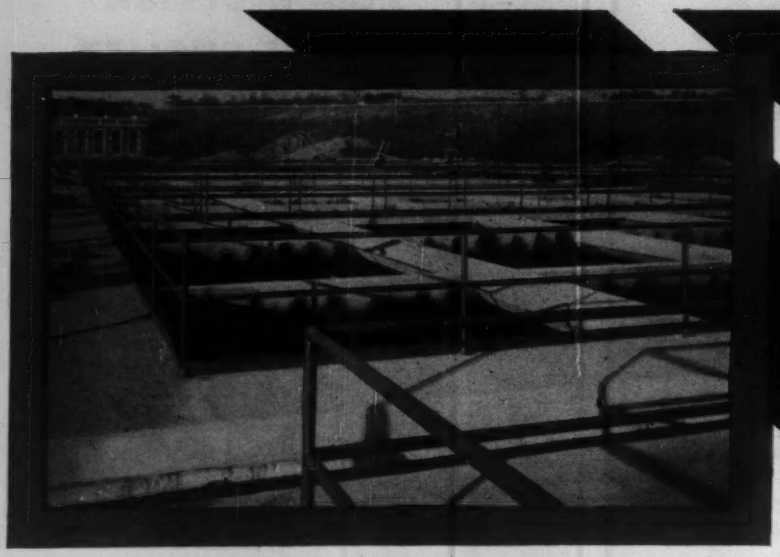

In Cleveland's Sewage Disposal Improvement Program . . . WROUGHT IRON PIPE stands guard against corrosive attack

There's plenty of evidence in Cleveland's Southerly Sewage Disposal Plant improvement program to show that the City's planners put a great deal of emphasis on economy of operation. One outstanding example is the extensive use of wrought iron pipe. More than 115 tons of this corrosion-resistant material was installed in the following services:

Sludge digestion and elutrition tank piping
Cold water lines—1" to 2½"
Downspouts and leaders
All heating piping
Handrailings
Blower lube oil piping
Perforated pipe diffusers
Expansion tank piping
Air piping
Air intake piping
Diesel oil piping
Exhaust gas piping

The entire program is supervised by City of Cleveland's Director of Public Utilities, Emil J. Crown, and is under the direction of Commissioner of Engineering, G. W. Hamlin, and Commissioner of Division of Sewage Disposal, G. E. Flowers.

The corrosion hazard in each of these services is well recognized. Many engineers, from all sections of the country, can certify how effective wrought iron pipe is in combating the condition, and providing long, economical life. Our bulletin, *Wrought Iron for Sewage Treatment and Disposal Installations*, discusses these, and other services, and documents wrought iron pipe's outstanding performance in each.

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CORROSION COSTS YOU MORE THAN WROUGHT IRON

WROUGHT IRON

TUBULAR AND HOT ROLLED PRODUCTS

ELECTRIC FURNACE QUALITY STEEL PRODUCTS

Profit Margins: Not Everybody's Boom

	First Quarter Sales (in thousands)		First Quarter Profits (in thousands)		Profit Margin	
	1955	1954	1955	1954	1955	1954
Air Conditioning & Heating						
Amer. Radiator	$76,240	$63,204	$4,099	$2,907	5.38	4.60
Minn.-Honeywell	56,852	57,248	3,728	3,950	6.56	6.90
Trane	12,180	11,653	579	854	4.75	7.33
York	19,368	27,271	489	774	2.52	2.84
Cement						
Gen. Portland	8,521	7,476	1,640	1,376	19.25	18.41
Lehigh Portland	11,557	10,197	1,414	1,059	12.24	10.39
Lone Star	19,208	17,450	2,521	2,319	13.12	13.29
Construction						
Arundel	5,120	3,745	76	243	1.48	6.49
Morrison-Knudsen	.....	.....	1,069	312	.....	.....
Fluor*	.....	.....	738	1,027	....	.....
Equipment						
Allis-Chalmers	126,379	123,617	5,920	5,599	4.68	4.53
Blaw-Knox	18,534	26,758	142	1,142	0.77	4.27
Bucyrus-Erie	14,730	20,504	1,012	1,749	6.87	8.53
Caterpillar	118,840	95,200	7,057	5,621	5.94	5.90
Chain Belt*	12,337	10,899	1,028	665	8.33	6.10
Gar Wood*	6,888	9,001	D454	D42	.....	.....
Link Belt	28,329	28,429	1,365	1,345	4.82	4.73
Minn.-Moline*	19,702	22,917	283	287	1.44	1.25
Wallboard & Roofing						
Certain-Teed	29,825	13,546	1,606	772	5.38	5.70
Johns-Manville	52,270	51,913	2,731	2,592	5.22	4.99
Nat'l Gypsum	33,572	27,731	3,574	2,668	10.65	9.62
U. S. Gypsum	56,676	46,818	8,807	6,524	15.54	13.93
Lumber						
Bruce	7,712	6,267	326	82	4.23	1.31
Weyerhaeuser	71,750	59,951	11,505	8,640	16.03	14.50

* Quarter ending April 30 D Deficit

Suppliers Still out in Front

Most suppliers of the construction industry are doing well this year as the construction boom keeps rolling along in high gear (table, above). But you can see exceptions in first-quarter reports, some of which have only recently been published.

Very few contractors issued sales-and-earnings figures for the first quarter, but there has been plenty of evidence to indicate that profit margins of most contractors are continuing to decline due to rising costs and stiff competition. Merritt-Chapman & Scott showed a sizable increase, but it's difficult to analyze this because it merged several large non-construction companies in March.

• **Materials suppliers**—As was the case last year (ENR Nov. 8, 1954, p. 151), most companies that supply materials are continuing to boost sales and profits. This means that in most cases their profit margins have continued to climb. But in the air-conditioning and heating-equipment field, most companies haven't done that well.

In the construction-equipment field, the picture is bright for most companies. One of Caterpillar's top executives, for instance, recently told Wall Street security analysts that his company can't keep up with demand.

A first-quarter decline in sales and profits at Blaw-Knox has been caused by its transitional stage of relocating plants and reorganizing departments. And at Bucyrus-Erie, which concentrates on heavy equipment, the pickup in the construction-equipment market hasn't shown up as rapidly as it has for other firms.

Pike Bonds Go Over

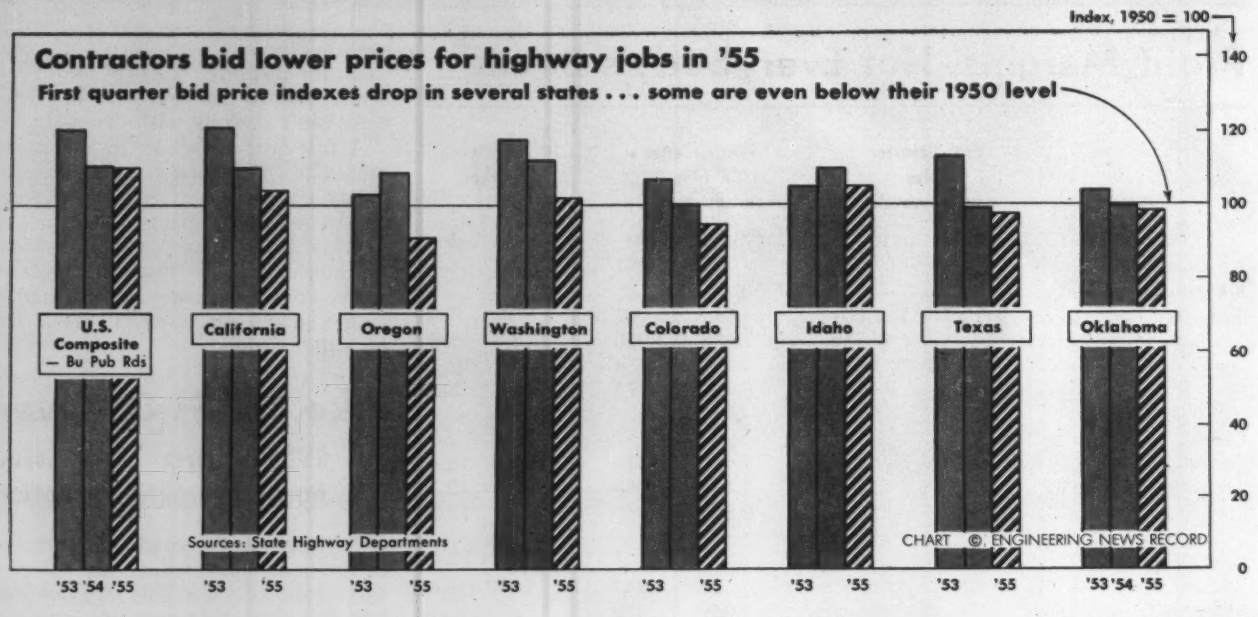
1955's first toll issue gets favorable reception

In spite of the gradual tightening of the bond market since the last new toll road issue was sold last December, this year's first new toll issue was bought by underwriters at a very reasonable rate. The Florida State Turnpike Authority last week sold its $74-million revenue bond issue for a turnpike between Hollywood and Ft. Pierce at an interest cost of about 3.28%. Most people around Wall Street feel that the authority got a very good deal.

Although the underwriters did not resell their bonds to investors quite as rapidly as some of the popular turnpike issues of the past, there's no doubt that the issue was a success. It is significant, however, that most of the buyers of these tax-exempt bonds were individuals. Life insurance companies and pension funds, who have been big buyers in the past, apparently felt that the yield was too low.

• **Advice for engineers**—Meanwhile, a life insurance executive had some advice last week for engineers who work on toll road projects. Said Philip Cristal of Northwestern Mutual Life Insurance Co.: "Engineers sometimes talk down to us. They think we can't interpret their supporting data, and so sometimes they don't give enough of it in their reports. And they are not always careful to indicate when their conclusions are based on pure judgment rather than facts." Cristal warned that institutional buyers like his company were going to get choosier in the future about buying turnpike bonds. He urged that turnpike commissions, highway officials and engineers resist political pressure to get roads built in a hurry. "Make haste slowly in preparing your reports."

(*B&F Continued on page 130*)



Highway Contractors Move Into Cost Squeeze

Highway contractors are running rapidly into profitless prosperity, unless they become more careful about their bidding. That's the conclusion you have to draw from bid price indexes for the first quarter.

The indexes kept by seven state highway departments, some of which are just becoming available, all show that bids on highway work are below a year ago (chart, above). The Bureau of Public Roads composite index for federal-aid work also shows prices down from a year ago, though not as most of the seven states show for their overall highway works.

At the same time, ENR's cost data show that costs of materials, labor and equipment are rising. And ENR contract awards indicate that new highway work available is rising to a record this year (chart, opposite page).

• **The big question**—How can contractors stay in business by charging bargain prices for their work, while their costs are rising—and rising even faster than last year? The answer could be that some are signing up such a large volume of work this year that they can keep their men and machines moving fast from one job to the next. That sort of mass production is bound to cut costs.

Even if this is true, how much profit can contractors make? The bid price indexes in California, Colorado, and Texas, for instance, were the lowest for any first quarter since 1950. Since 1950, construction costs have risen substantially. In Los Angeles, costs of labor and materials are up 25%. In San Francisco, the gain is 24%. In Denver, it's 20%, and in Dallas, 11%, according to ENR's indexes. Highway contractors, like their counterparts in other sectors of construction, are noted for their ingenuity in cutting costs. But this cost-price squeeze may prove too much for them.

Furthermore, materials are tighter and delivery periods on equipment are longer than last year. Heavy demand has tightened cement in some areas; and steel takes longer for delivery. Equipment shipments are rising (chart, opposite page), which suggests that deliveries may take longer as the year goes on. A more determined drive for higher wages could add to contractors' troubles.

Here's the detailed rundown on bid price indexes:

• **California**—The index here was 1.5% below the last quarter of 1954 and 5.1% below a year ago. The State Highway Department expects that bid prices will start rising soon, simply because they are too low in relation to rising costs.

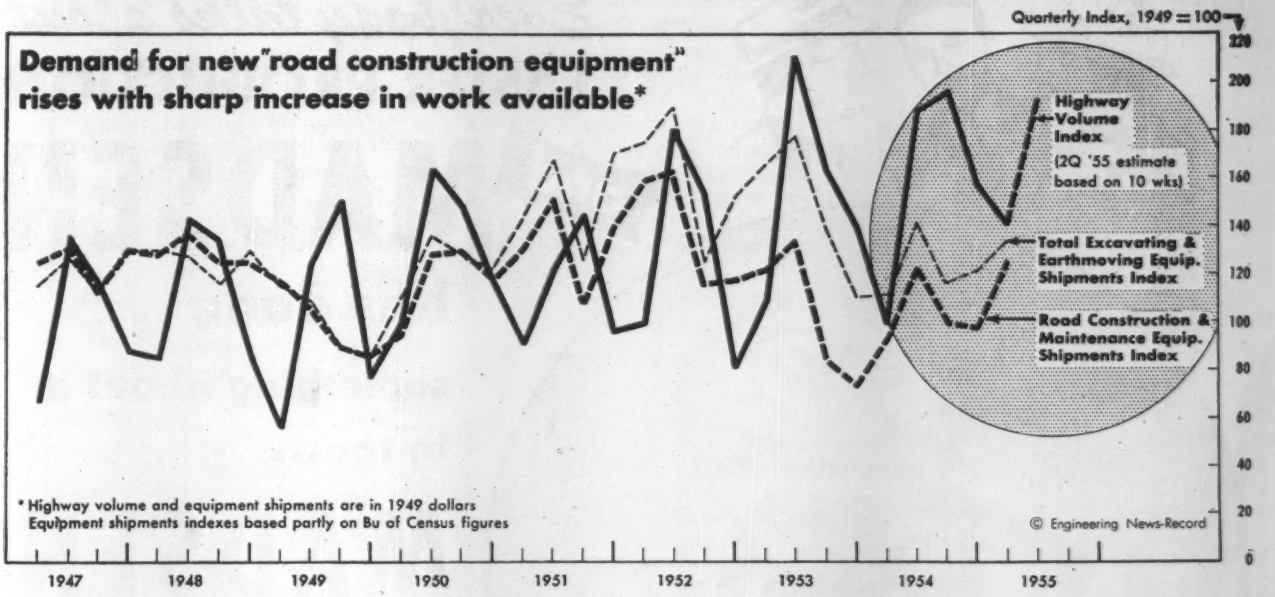
• **Oregon**—The first quarter bid price index was 2.8% below the fourth quarter of 1954 and a whacking 14.1% below a year ago. This was the biggest decline for any of the three West Coast states.

A sharp break in crushed rock prices accounted for most of the decline from a year ago, though there wasn't much drop during the first quarter. Grading prices continued to fall during the first quarter: The average was 11% less than a year ago. Though asphaltic concrete pavement prices were up slightly in the first quarter, they were still down 15% from a year ago. Only major item that is above a year ago is portland cement concrete paving—up a slight 0.7%.

Oscar Cutler, chief cost analyst for the Oregon State Highway Department, expects bid prices to stay fairly stable through the third quarter of 1955. However, some major projects coming along could force bids down, because contractors will have finished current jobs and be ready to compete.

• **Washington**—Bid prices here tumbled fast during the first quarter, after remaining fairly steady during the preceding nine months. The first-quarter index was down 8.4% at the same time, however, there have been fewer bidders per job this year than in either 1953 or 1954. For the first four months of this year, bidders have averaged 6.5 per contract, compared with a little more than 7 per job in the past two years. This is a new trend for Washington.

• **Colorado**—The sharpest drop during the first quarter came in this state, where the bid index fell 8.3% below the fourth quarter of 1954 and 5.7% under a year ago. This downward movement offset a rise during the sec-



ond half of last year, dragging the Colorado index down to its lowest level in six years.

• **Idaho**—Prices bid on state highway jobs in Idaho have been riding the roller-coaster during the past year. The index dropped 32% during the second half of 1954, then climbed 43% in the first quarter of this year. Even so, it is still 5.1% below a year ago.

Main reasons for the sharp drop last year, according to the Idaho Highway Department: (1) A record dollar volume of work available, (2) keen competition, and (3) excellent weather. The department thinks that the 1955 rebound came because "when contractors have exhausted their ability and opportunity to absorb high labor and materials costs, they must adjust their prices upward, or go out of business." The department expects the index to remain at its current level or perhaps climb slightly in line with cost increases.

• **Texas**—The Texas Highway Department reports a 1.3% slide in bid prices between the last quarter of 1954 and the first quarter of this year. Since then, its April monthly index shows an increase back to the fourth-quarter level. But the April index still averages 7.3% below a year ago.

• **Oklahoma**—Bid prices here dropped 2% during the first quarter, checking the uptrend during the last half of 1954. The latest index is 1.2% below a year ago.

• **Other states**—There are a number of other state highway departments that compute bid price indexes on a semi-annual or annual basis. Their figures show what has happened to bid prices up to the beginning of this year:

• **Nebraska**—Bid prices have been following the trend in most states west of the Mississippi. The 1954 index was 8.7% below 1953—lowest level since 1950.

• **Minnesota**—Bid prices, which dropped very sharply in 1953, leveled off in the first half of 1954, then turned up 4.5% in the second half. The highway department expects a slight increase in 1955.

• **Mississippi**—The bid price index dropped sharply in 1953, then climbed 4.4% last year. However, it was still 14% below 1952. Competition brought an average of 7.75 bidders per contract at the department's May 25 letting.

• **Pennsylvania**—Highway competition is getting tighter this year. During the first four-and-a-half months of this year bidders averaged 7.6 per job, compared with 7 last year. The bid price index dipped slightly in 1954.

• **Connecticut**—Highway prices increased in 1954, after dropping in the second half of 1953. The yearend 1954 index was 1% above midyear, and 3.4% above the low at the end of 1953.

• **Bids on federal-aid projects**—The Bureau of Public Roads' U. S. composite mile price index shows a 0.4% decline in bid prices on federal-aid highways during the first quarter. This interrupted a moderate upturn last year (chart, opposite page).

The decline this year was caused by lower bid prices for concrete pavement (down 1.3%), reinforcing steel (down 1.7%), and structural steel (off 0.6%). These offset a 1.1% rise in bids on common excavation and a 1.5% climb in structural concrete.

Bids ran 10.3% below engineers' estimates during the first quarter on federal-aid road jobs. This margin has been narrowing slightly over the past year or so.

Similar data are also available on recent contract lettings in Ohio and New York. Contractors were below engineers' estimates on 12 of 16 jobs for which bids were taken May 10 by the Ohio Highway Department. The $2.2-million low bid on one job was 20.1% below the estimate. On a smaller contract, the lowest bid was 31.6% below the estimate.

In New York, low bids ran below estimates by wide margins when bids were opened May 11 on 11 projects. The range was from 14% to 36%, with six low bids more than 20% under estimates. This kind of bidding is a sure sign of tough competition.

• **Average number of bidders**—As regards average number of bidders on federal-aid projects, the average of 7 per contract for the first quarter of this year was down from 8.1 per job in the same period last year. That was the highest average for any quarter since statistics have been kept. However, the 7.2 average for the first quarter of this year is slightly higher than during any of the preceding three quarters.

(*B&F continued on page 133*)

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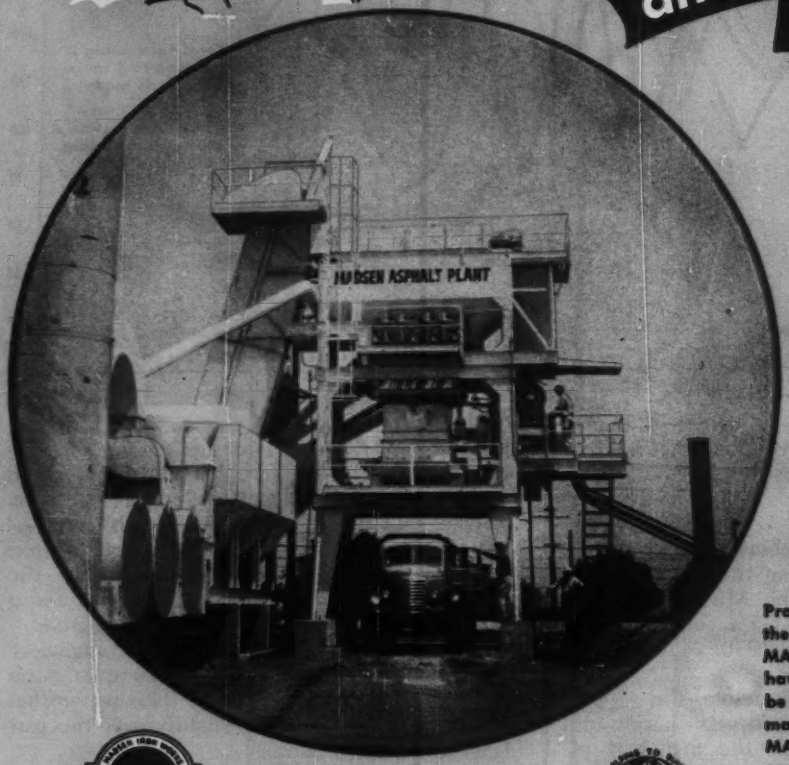

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- **Exclusive bin design which eliminates segregation, provides uniform aggregate withdrawal . . . and promotes improved aggregate distribution in the weigh-box.**
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Lumber Shortage Developing For Want of Freight Cars

A serious shortage of railroad cars is holding up mill shipments of fir lumber and plywood from the Pacific Northwest to midwestern and eastern markets. In New York, deliveries of fir are running six weeks behind normal schedules. Chicago also reports a tight supply of fir because of the car shortage. Prices have increased in both cities as the result of heavy demand and tight supply.

Terrific demand for fir has pushed the backlog of orders at the mills sharply upward this year. But the mills can't get cars to move the lumber out. The Southern Pacific R.R. admits that mills are getting only about 50% of their car needs. But some mills only a short time ago were getting only 25% to 30% of their car needs, according to Charles Hetzel, Oregon Public Utilities Commission head. According to R. U. Bronson of the Shippers Supply Committee, a mill-to-mill survey indicates the situation is serious and will get worse. This committee sued Southern Pacific last year for failure to deliver freight cars.

• **The causes**—A truckers' strike on the West Coast, plus movement of cars to the Southwest to handle the new wheat crop, are cutting deep into the supply of cars available for lumber shipments. Because of the truck strike, some cars that normally would make a return trip eastward with lumber are now being held back for local shipments.

Plywood deliveries also are being hurt. The situation in Boston and Philadelphia is reported tight. New York so far has not felt any bad effects, but dealers are keeping their fingers crossed. Reports from the mills are that a shutdown or slowdown of production may be coming because of the car shortage. Many smaller mills have no storage facilities, and have to stop producing when their sidings are empty.

Mortgage Banker Group Lowers Its Estimate of Home Starts

The general tightening in mortgage credit will probably be reflected in a smaller number of home starts this fall. That's the latest guess of Norman Strunk, executive vice-president of the U. S. Savings & Loan League. Strunk feels the league's earlier guess of 1.4 million starts for 1955 should be trimmed down to something like 1.3 million. This would make 1955 the second biggest year so far on record.

Strunk doesn't see any collapse coming in the housing market. But he warned members of the league to be more cautious in mortgage terms. Said he: "I believe it is time to put a close check on the number of commitments we make to builders and also to check closely on the number of starts they make with loans from our institutions ahead of sales."

Government Forecast Gives Cheerful News on Spending

Business will spend substantially more for capital purposes during the second and third quarters of this year than it did during the first quarter. That is the prediction made last week by the Securities & Exchange Commission and the Dept. of Commerce. It confirms earlier forecasts by the McGraw-Hill Economics Dept. that capital spending would go up this year (ENR Apr. 28, p. 111).

The government estimates that capital outlays will be $27.9 billion in this quarter and $28.8 billion in the third quarter, on a seasonally adjusted basis. That compares with $25.6 billion in the first quarter. Capital spending has been going downhill since the third quarter of 1954.

All major durable-goods manufacturers plan increases in spending. The big gains here will be in steel, nonferrous metals, and transportation equipment. In the non-durable field, oil, chemical, and paper companies plan big increases. Public utilities also plan sizable increases in spending, particularly in gas pipelines.

Business Briefs . . .

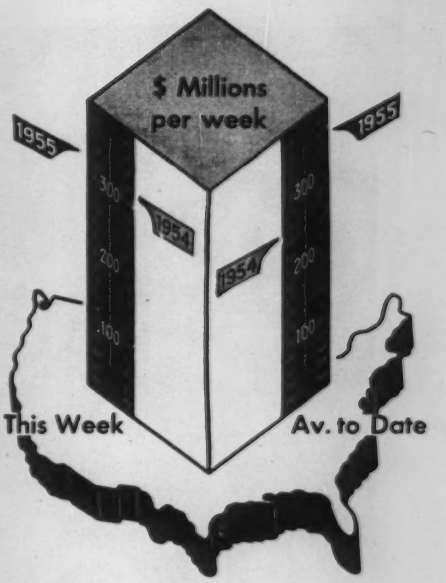
• **Ford Motor Co.** plans to build a new 950,000 sq ft engine plant near Lima, Ohio. This is the first project announced in its $625-million expansion program. And it will be the fourth Ford engine plant built since World War II.

• **Washington bridges** – Washington State Toll Bridge Authority has asked Seattle investment bankers to study feasibility of revenue bonds to finance a $138-million network of toll bridges across Puget Sound and Hood Canal.

• **Arthur G. McKee & Co.**, Cleveland engineer-constructors, has signed an agreement with Udhe Corp. of New York, that will permit it to use a number of important German chemical developments in plant construction. Udhe is a U. S. subsidiary of a German firm.

Activity This Week

As reported to ENR
(In millions of dollars)



Amount of contracts let

	This Week	Cumulative 24 wks 1955	1954	% chge
Federal	$36.5	$803.3	$519.8	+55
State and municipal	98.5	2,637.2	2,100.2	+13
Total public	135.0	3,170.5	2,620.0	+21
Total private	192.9	5,402.4	3,570.7	+51
U. S. Total	$327.9	$8,572.9	$6,190.7	+38
Contracts by type of work				
Waterworks	$2.9	$118.9	$105.9	+12
Sewerage	12.8	188.2	171.6	+10
Bridges	5.7	205.6	184.5	+11
Highways	42.9	940.7	764.9	+23
Earthwork, Waterways	2.9	249.9	131.7	+90
Buildings:				
Public, excl. hsg.	38.3	755.3	776.4	−3
Housg., public	4.1	132.8	91.1	+46
Housg., private	85.8	3,165.7	1,971.4	+61
Commercial	54.5	766.1	583.4	+31
Industrial	46.9	1,139.6	875.1	+30
Unclassified	31.1	910.1	534.7	+70
Total	$327.9	$8,572.9	$6,190.7	+38

NOTE: Minimum size projects included are: Waterworks and waterways, $44,000; other public works, $73,000; industrial buildings, $93,000; other buildings, $344,000.

New capital for construction

(millions of dollars)	Week of June 9 1955	Cumulative 23 wks 1955	% chge '54-'55
Corporate securities	$38.3	$1,544.5	+13
State and municipal:			
All except housing	94.5	1,842.9	−27
Housing	...	46.2	+8
Federal loans	11.3	51.7	−3
Federal aid	...	95.0	+73
Total non-federal	$144.2	$3,580.3	−11
Federal appropriations:			
In U. S.	...	$59.2	+6
Outside U. S.	...	...	−100
Total new capital	$144.2	$3,639.5	−11

ENR cost and volume indexes, 1955

		Base years = 100 1913	1926	1949
Construction Cost	6/9	656.31	315.49	137.59
	6/2†	655.96	315.32	137.51
Building Cost	6/9	465.72	251.76	132.39
	6/2†	464.82	251.27	132.13
Volume	May	731	297	211
	Apr.	609	248	176

† Official monthly index for June

Most Modern Trucks on

Chevrolet's handsome new Task-Force models answer your job needs with the most modern design and engineering features the trucking industry has ever seen.

CHEVROLET

Styling that speaks for itself—and speaks well of you and your business! Styling that catches the eye and serves as an on-the-job advertisement! You'll notice *two* distinctively different design treatments are offered—one in light- and medium-duty models, the other in heavy-duty jobs. It's functional styling, too. The new panoramic windshield adds to all-over design appeal—and inside it's even *better looking*—with a wider, safer view of the road. Chevrolet's new Safety Step running board is *concealed* and stays free of snow, ice or mud. Drivers will especially like the broader, softer seats; the High-Level ventilating system that takes in outside air in all kinds of weather.

NEW CHEVROLET

Any Construction Job!

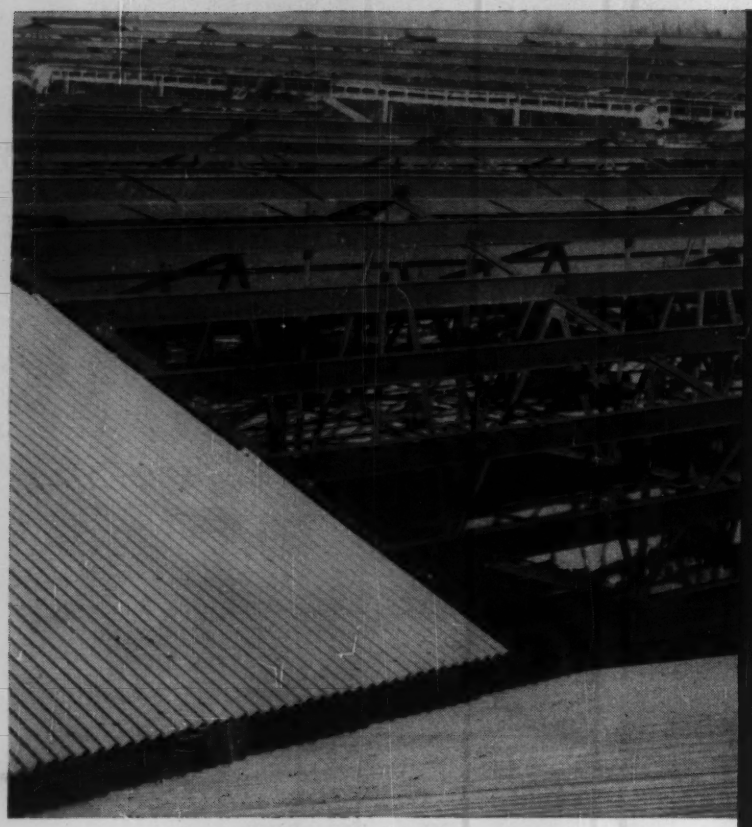
High-Voltage power saves on operating costs—saves time, too. All six new Task-Force engines are sparked by a husky new 12-volt electrical system. That means snap-of-the-finger starting even in cold weather, and boosted generator capacity. The high-compression power of these great valve-in-head engines keeps you running longer between gas stops.

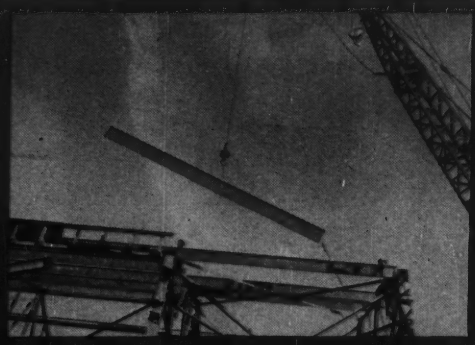
Anything else? Plenty. Capacities go all the way up to 18,000 lb. G.V.W.—available in 2-ton models. Enough G.V.W. for practically any job! Frames are new—of 34-inch standard width to accommodate special bodies, and with more rigid, completely parallel side members. And there's new suspension, front and rear, to make the road a lot easier on the load.

Tubeless tires are included on ½-ton models at no extra cost. Power Brakes are standard on 2-ton models, optional at extra cost on others. All models except Forward-Control are available with Power Steering as an extra-cost option. New Overdrive is now available on ½-ton models, optional at extra cost; Hydra-Matic, on ½-, ¾- and 1-ton models. There's more still, but call your Chevrolet dealer for complete details. . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

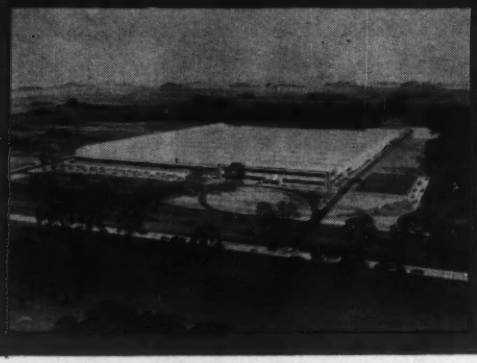
Task-Force TRUCKS

BUILDERS BEAT A DEADLINE WITH J&L JUNIOR BEAMS





JOB DESCRIPTION
Marvel-Schebler Products Division
Borg-Warner Corporation
Automatic Transmission Department
Building
Decatur, Illinois
Engineers—
Alfred Benesch & Associates, Chicago
Structural Steel Fabricator—
Indiana Bridge Company, Muncie, Ind.
Contractor—
J. L. Simmons Co., Inc., Decatur, Illinois



2400 tons of steel structurals, including over 500 tons of J&L Junior Beams, in 75 days . . . that was the "unusual" erection schedule laid down for the new automatic transmission building of Borg-Warner Corporation's Marvel-Schebler Products Division. And the schedule was met with a few days to spare!

The men on the job give lightweight Junior Beam roof purlins a big share of the credit for this outstanding accomplishment. Here are just some of their reports.

"The time for delivery of steel . . . was the essence of the contract. We chose J&L Junior Beams because of their availability, simple fabrication and ease of erection."

H. E. WRAY, Assistant General Manager
INDIANA BRIDGE COMPANY

"We could never have met the schedule that was laid down without these J&L Junior Beams. They have a wider seating area and double footings which gave our workmen a safer, faster area of moving around aloft. If we had used the usual channels, we would have had to slow down for safety's sake. We would have had foot room on only one side of the bottom of the channels, compared with a place on either side for a man to get foot support on the beams."

CECIL STODGHILL, Construction Superintendent
INDIANA BRIDGE COMPANY

Take a tip from the men that are using them, J&L lightweight Junior Beams can help you cut building costs. Experience shows that J&L Junior Beams are the most economical hot rolled purlin sections available. They're adaptable, easy to install, rigid and vibration resistant.

Write today for more information on this modern lightweight J&L structural.

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☐ Please send me a free copy of your booklet on J&L Junior Beams.
☐ Please send me comparative cost figures on purlin sections.

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Company_____
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J&L STEEL

JUNIOR BEAMS ARE READILY AVAILABLE FOR PROMPT DELIVERY

UAW Shows Labor Relations Don't Stand Still

Ford contract poses question: Will 20-cent package become 'yardstick' for measuring the gains of other unions?

Still beset with their own labor problem, the building trades were given something else to think about last week—and for some time to come—in Ford's new and controversial three-year contract.

The new agreement has focused national attention on the question of management's responsibility in the field of employment security and has given labor-management relations new dimensions which will be felt eventually in many industries.

• **Some significant factors**—Of particular significance to employers who have seemed far removed from the pressure of a guaranteed wage is the nature of the compromise and its relation to unemployment compensation. By taking the form of a supplementary unemployment benefit plan, the Ford solution has given recognition to what is generally regarded as one of the key factors in a successful GAW plan (ENR Mar. 17, p. 91). By using the medium of a trust fund, built by a 5-cent hourly company contribution, the total cost of which is fixed, limited, and determinable, it has cut a lot of the ground out from under traditional objections to employment security programs for smaller industries, even where craft unionism prevails. Also working against these objections is the extension of area bargaining such as the building trades have experienced.

By making the plan contingent on assurances from the various states that trust fund payments will not disqualify recipients of state unemployment benefits, the Ford contract suggests further revisions in state laws. Pressure for bigger state benefits—with higher payroll costs to all employers—is invited by linking company costs to size of state benefits. Many feel that the general result—as other companies like General Motors move along a similar path—will be removal of many of the roadblocks to various forms of employment security programs.

• **A few questions**—One of the big questions is how other unions generally will reduce the Ford package to a yardstick for measuring their own gains—a question raised last week when the steelworkers began their negotiations with U. S. Steel. Confined by contract to negotiating wages only, will the steelworkers measure McDonald's success against Ford's 20-cent total, or against the 6-cent (or 2½%) annual wage boost?

What will be the yardstick for other unions with an open field? How attractive will Ford's cost-of-living allowance, or its liberalized pension and insurance plans become? Will labor generally seek some form of employment security?

• **Some indications**—Actually recent negotiations in the construction industry have indicated a tendency to soft pedal security benefits in favor of immediate sizable wage boosts.

• Gypsum workers in several northwestern Ohio plants threw away the security afforded by existing pension plans in return for a 3.5-cent boost in basic rates. Like Ford's tool and die makers, who protested swapping higher rates for the security plan, they felt a "bird in the hand is worth two in the bush."

• Contractors in Arizona tried but couldn't sell continuation of a cost-of-living index escalator clause. Carpenters chose, instead, a device which ties future wage increases to the national wage average for the trade, reflecting labor's interest in "what the other fellow gets." Under their new four-year contract, carpenters receive a 12.5-cent boost now with another 10 cents Aug. 1. Then the gimmick takes over, with another increase at the end of this year and again on June 1 of each succeeding year.

• Recent union gains in many cases make a respectable showing, compared with the Ford package, however applied; some don't. Here are a few: floorlayers in Youngstown, Ohio, got a 62.5-cent boost; teamsters in some Fort Wayne, Ind., ready-mix concrete plants won 12.5 cents retroactive to Jan. 1 plus 2.5 cents June 1, plus six paid holidays retroactive for New Year's and Memorial Day; Los Angeles bricklayers gained 20 cents; Arizona cement masons won 20 cents now plus 2.5 cents Oct. 1, with a 4-cent boost each of the next three years.

On the other hand, Cleveland carpenters, plumbers and pipefitters settled for 7.5 cents each year under a two-year contract; new home painters in Buffalo got an 8-cent boost; 6,000 carpenters in eight western Pennsylvania counties took 7.5-cent increase with no health and welfare change.

Wages and Productivity

Rising labor costs in the construction industry threaten to offset savings made through a variety of economy measures and devices, according to W. G. Malcom, president of the Canadian Construction Assn.

Stressing that higher wages without greater productivity lead to higher prices, he had this to say: "While savings have been made through lower prices, faster deliveries, lower profit margins, new techniques and equipment, they have sometimes been exceeded by increases in wage rates. . . . Production rates in a number of trades, however, are below prewar levels. Owners need assurance that construction costs will not rise further, and labor's stake in the industry is great."

See No Pot of Gold

Many workers turned away at big construction jobs

Two of today's big multi-million-dollar construction jobs have, like rainbows, been luring construction workers from all parts of the country—but for most of them there's been no pot of gold at the journey's end.

Hundreds of men applying for construction jobs on the long-span suspension bridge being built across the Straits of Mackinac in Michigan (ENR Jan. 27, p. 35) are being turned away each week. And in Denver, Colo., hundreds more have been crowding in, searching for work on the new Air Force Academy north of Colorado Springs (ENR May 5, p. 21).

Although work on the Mackinac Bridge began nearly a year ago, hiring has been slow and is not expected to pick up until later this month when the superstructure begins to take shape.

Hiring for the project is being done through labor unions which are notified by contractors when a job is open. Few of the unions have offices

(*Continued on page 138*)

TAKE TIME OUT

Cancer strikes 1 in every 4 Americans. It strikes with vicious swiftness. Too often it is discovered — too late.

To protect yourself and your family, have a thorough medical examination every single year without fail. Six months after such an examination, every woman over 35 should return for a pelvic checkup. Every man over 45 should have a chest X-ray twice each year. *Many cancers can be conquered if caught in time!*

STRIKE BACK AT CANCER... MAN'S CRUELEST ENEMY

Give to AMERICAN CANCER SOCIETY

near the project. Although a lot of hiring is done in Detroit, operating engineers come out of Escanaba; tugboat men, pile drivers and carpenters through Sault Ste. Marie, and ironworkers from St. Ignace.

In Denver, the lure of the Air Force Academy created such a critical situation that the Denver Building and Construction Trades Council appealed to unions across the country to dampen the spirit of wishful thinkers. "The sad truth is," said the council's business manager," that hundreds of workers are arriving here without first making inquiries with the result that the roads to Denver are leading directly to the already overloaded relief offices."

In an effort to relieve the situation, the Denver council has pointed out that actual construction will not commence for another year and that under present schedules, the normal work force will be sufficient to handle the job, leaving little chance for gainful employment by out-of-state workers.

End of Fiscal Year Brings Changes in Payroll Taxes

Effective July 1, lower rates will prevail in New Jersey for workmen's compensation and employers' liability insurance. The reduction, which will amount to 1.2% in the collective level of rates, has been approved by the New Jersey State Department of Banking and Insurance.

The new rates are based on experience statistics gathered by the state's Compensation Rating and Inspection Bureau. Results of the survey disclose that the combined loss ratio in 1954 for companies writing such insurance was 56.42%, compared with 60.83% in 1953 and 68.23% in 1952.

But in Tennessee some employers are faced with higher payroll taxes. Those with eight or more employes will have to pay a higher unemployment payroll tax commencing July 1. Amount of the increase will depend upon employers' respective experience ratings, but, for example, those now paying 1% will be upped to 1.2%, and those paying 1.5% will be increased to 1.8%.

Abnormally high unemployment was cited by the state employment security commissioner as the cause. During 1954, amounts paid out in unemployment compensation benefits exceeded contributions to the fund by $15 million. The reserve dropped from a 1953 high of $115 million to $93.9 million last month. The fund is not expected to drop much further due to leveling off in unemployment.

Training Promotion

Two national groups set up apprentice programs

The Associated General Contractors of America, Inc., and the Structural Clay Products Institute have each undertaken a program to stimulate interest and cooperation in the training of apprentices. Emphasis has been placed on increased promotional activity at the local level. Better training programs and more apprentices are the big objectives.

Fifteen more members have been added to the AGC apprenticeship committee, headed up by Ira McK. Koger of the O. P. Woodcock Co. in Jacksonville, Fla. In addition, apprenticeship subcommittees, each chairmaned by a member of the national committee and composed of four other general contractor members, have been established in each of the 12 AGC districts.

Through personal contacts rather than mass recruiting techniques, the subcommittees aim to develop a wider understanding of the advantages of a career in construction, to acquaint more people with existing training problems and to obtain greater cooperation within the local areas. They will utilize where possible the facilities and assistance of the Federal Bureau of Apprenticeship and of state and local school officials.

Members of the subcommittees have been urged to meet regularly and to participate actively in local training programs. They have been encouraged to strengthen existing programs and to initiate new ones.

With a more sharply focused objective, the program of the Structural Clay Products Institute is less formal in nature. It represents a general understanding among federal education officials and masonry contractors, producers and union members that they will jointly promote a more active interest in the training of apprentices for the bricklaying and stone masonry trades.

Principal avenues of approach will be community campaigns for full school participation in related classroom instruction, and the exposure of high school youths to the "dignity of labor" and the "economic advantages of employment in the building trades." Behind the joint efforts is a confident feeling on the part of masonry men that the pendulum will swing back to more decorative architecture, generating big expansion in masonry construction.

Plasterers Serve Notice On Jurisdictional Losses

The plasterers' union has served stern and unqualified notice that it won't permit bricklayers to encroach further upon its jurisdiction.

At their 36th annual convention in Buffalo, N. Y., representatives of the Operative Plasterers & Cement Masons International Association (AFL) demanded an immediate conference with the bricklayers to settle once and for all the question of what lies within the respective jurisdiction of the two unions.

They contend that extension of the bricklayers' jurisdiction is designed to push the plasterers into a second-class position and eventually to absorb them.

Officers of the union were also directed by the delegates to notify the AFL that the plasterers intend to do whatever is necessary to defend their rights "until such time as there is a disposition on the part of the bricklayers to join with other branches of the trowel trades in solving a problem that confronts both organizations."

Particular interest in the solution of the jurisdictional dispute stems from the pending merger of the AFL and CIO, tentatively scheduled for December. Although the proposed constitution for the new federation (ENR May 12, p. 170) is designed to protect the existing jurisdiction of each affiliate, one of its stated objectives is "to encourage the elimination of conflicting and duplicating organizations and jurisdictions through the process of agreement, merger, or other means, by voluntary agreement in consultation with the appropriate officials of the federation."

Home Builders in Cleveland Get Own Carpenter Contract

The Home Builders Association of Greater Cleveland has signed a contract of its own with carpenters employed by association members, successfully concluding a long and determined struggle for separate recognition (ENR May 12, p. 169).

The victory was largely reduced to one of principle, because the association signed for the same rates the BTEA had agreed to in its negotiations. One significant difference, however, is the omission of trade autonomy clauses in the home builders' contract.

Under the new two-year agreement, carpenters will get a 7.5-cent wage boost each year. The settlement follows the general pattern earlier established in negotiations that have been concluded with several of the other building trades.

The Wonders of RESEARCH

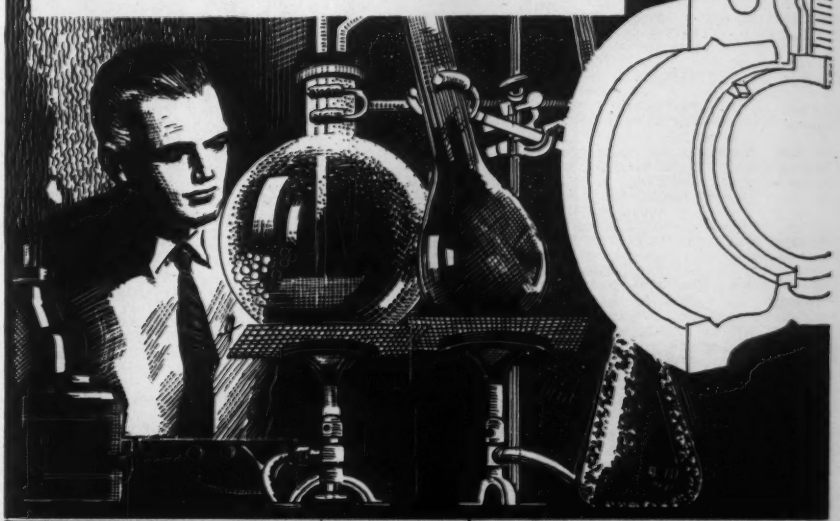
M-H

Perhaps we are prone to see only the more spectacular phases of modern research, such as the development of antibiotic drugs, television, or jet planes. As a matter of fact, modern life probably depends more on the development of more common products.

For example, consider valves and hydrants, which most people take more or less for granted but without which a modern water works could not function. And without water works, modern cities could not exist.

There is no romance about valves and hydrants, nothing spectacular. Yet M&H Valves and Hydrants are the products of many years of research in engineering, design, metal strength and structure, foundry practice, and water works operation.

These M&H products enjoy the confidence of engineers because they give top performance year-after-year in a service vital to the American way of life. For details, write M&H VALVE & FITTINGS COMPANY, Anniston, Alabama.



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OFFICIAL PROPOSALS

RATE: The rate for Official Proposal advertising is $1.80 per line or fraction set solid. Where the advertisement is set other than solid, the space is measured by total space occupied and charged on basis of 12 lines to the inch.

CLOSING DATE: Friday 10:30 A.M. for issue dated the following Thursday.

SEND COPY TO: Official Proposal Division, Engineering News-Record, 330 West 42nd Street, New York 36, N. Y.

Bids: June 23, 1955

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time, on the 23rd day of June 1955, by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 2, Lacy Ketchum, District Engineer, 109 No. Genesee St., Utica, N. Y.						
Montgomery	FAC 55-8	South Amsterdam–Route 5S	2.56	9" Cem. Conc. Pavt. 24' Wide = 2.49 Mi.	$55,000	$1,050,000
	FASH 55-6	City of Amsterdam: Route 5S Arterial Connection Project U-488(5)	(0.44) (Int.)	Asp. Conc., Opt. = 0.04 Mi. Asp. Conc., Opt. (Int.) = 0.44 Mi. Misc. Work = 0.03 Mi. Comp. I-Beam Bridge 216'	Plans $25	
DISTRICT No. 3, Wm. Robinson, District Engineer, Weigh Lock Building, Syracuse, N. Y.						
Tompkins	FAC 55-3	City of Ithaca: Seneca and Green Streets Project U-427(7)	0.40	Asp. Conc., Ty. 1A = 0.06 Mi. Asp. Conc., Ty. 2A = 0.29 Mi. Misc. Work = 0.05 Mi. Hy. Sep. Comp. I-Beam 123.6'	$27,000 Plans $15	484,000
DISTRICT No. 4, E. G. H. Youngmann, District Engineer, Barge Canal Terminal, Rochester 1, N. Y.						
Monroe	FAC 55-9	Rochester City: Inner Loop (South Ave. to George St.) (Demol. Cont. No. 1) Project U-231(5)	0.27	Demolition of Buildings & Misc. Work	$2,500 Plans $10	45,000
Ontario	FAC 55-4	Canandaigua City: Lake Road By-Pass, Pt. 1	2.25	Asp. Conc., Type 2A	$60,000	1,086,000
	FASH 55-2	Lake Road By-Pass, Pt. 2		2 Closed Box Bridges 36.2' and 20.8'	Plans $15	
	FAC 55-5	Canandaigua City: East Lake Road Connection, Pt. 1				
	FASH 55-3	East Lake Road Connection, Pt. 2 Project U-338(9); U-544(3)				
DISTRICT No. 5, C. R. Waters, District Engineer, State Office Bldg., 65 Court St., Buffalo, N. Y.						
Cattaraugus	FAC 55-10	City of Salamanca: Clinton St. (Main St. to Wildwood	1.98	Asp. Conc., Ty. 2A = 1.11 Mi. Asp. Conc., Opt. =	$75,000	1,302,000
	C 55-11	Ave.) City of Salamanca: Parkway Drive Proj. U-356(6)		0.83 Mi. Misc. Work = 0.04 Mi. Comp. I-Beam Br. 650'	Plans $50	
Chautauqua	FAC 55-7	City of Jamestown, West 6th St. and West 5th St. Connection Project U-378(5)	0.14	Asp. Conc., Type 2A	$4,000 Plans $10	71,000
Erie and Niagara	FAC 55-12	Tonawanda City: Seymour St.–Barge Canal	0.79	Asp. Conc., Ty. 2A = 0.74 Mi. Misc. Work = 0.05 Mi. Plate Girder Br. 448'	$74,000 Plans $25	1,342,000
	FAC 55-13	North Tonawanda City: Barge Canal–River Road Project U-865(9)				
DISTRICT No. 6, James H. Thomas, District Engineer, State Office Building, Hornell, N. Y.						
Chemung and Steuben	FARC 55-37	Big Flats–Gibson, S.H. 742	7.50	Asp. Conc., Opt. = 7.25 Mi. Misc. Work = 0.25 Mi. 2 Brs. Twin Box 20.3' Ea. 1 Br. I-Beam 47.2' 1 Br. Comp. I-Beam 67'	$180,000 Plans $50	3,174,000
	FASH 55-5	East Corning–Horseheads, Pt. 1 East Corning–Horseheads, Pt. 2 S.H. 53–6 Horseheads–Corning, S.H. 358 Project U-661(4); F-661(4)				
Chemung	FARC 55-20	Erin–Van Etten–Spencer, Pt. 2, S.H. 8010 Lockwood–Van Etten, Pt. 3, S.H. 9114 Project F-102(3); 58(4)	2.82	Asp. Conc., Opt. 1 Br. Reinf. Conc. T-Beam 48'	$40,000 Plans $15	738,000
DISTRICT No. 7, Robert W. Sweet, District Engineer, 444 Van Duzee Street, Watertown, N. Y.						
Jefferson	FARC 55-13	West Corners–Redwood, S.H. 1577A Redwood–Alexandria Bay, Pt. 2 S.H. 236 Redwood–St. Lawrence Co. Line, S.H. 1227 Project F-334(4); F-650(4)	8.71	Asp. Conc., Opt.	$72,000 Plans $25	$1,295,000
St. Lawrence	FARC 55-40	Harrisville–Fine, Pts. 1 & 3, S.H. 8337	8.96	Asp. Conc., Ty. 1A = 8.46 Mi. Bit. Mac. = 0.29 Mi.	$112,000	2,044,000
	FGRC 55-41	Fine–Star Lake, S.H. 8175 Project F-FG-260(2)		Gravel = 0.21 Mi. I-Beam Br. 118' R.R. Sep. Plate Girder 67'	Plans $50	
St. Lawrence	FARC 55-38	Gouverneur Village, S.H. 5331 Project F-476(4)	0.65	Asp. Conc., Optional Plate Girder Br. 300'	$50,000 Plans $25	839,000
DISTRICT No. 9, F. W. Donovan, District Engineer, 71 Frederick St., Binghamton 21F, N. Y.						
Broome	FARC 55-17	Sanitaria Springs–Harpursville S.H. 5243	3.91	9" Cem. Conc. Pavt. 24'–30' Wide = 3.89 Mi.	$72,000	1,331,000
		Nineveh–Afton, S.H. 5200	(0.72)	Asp. Conc. Opt. = 0.72 Mi. (Int. Rds.)	Plans $25	
		Nineveh, S. H. 209	(Acc.)	Misc. Work = 0.02 Mi. 1 Br. I-Beam 36'		
		Project F-496(9)		2 Br. Comp. I-Beam 60' & 146'		
Broome	FAC 55-6	City of Binghamton: Brandywine Ave. Ext. Pt. 2	0.60	Asp. Conc., Opt. = 0.50 Mi. Asp. Conc., Opt.	$56,000	1,020,000
	FASH 55-4	(Bevier St.). Brandywine Ave. Ext. Pt. 2, (North Chenango St. Int.) Project U-496(10)	(1.02) (Acc.)	(Int. & Acc. Rds.) = 1.02 Mi. Misc. Work = 0.10 Mi. 2 Hy Seps. Comp. I-Beam 150.3' & 301'	Plans $15	
Sullivan	FARC 55-42	Bloomingburg–Monticello, Pt. 2, S.H. 5457 Project F-495(8)	2.91 (2.38) (Acc.)	9" Cem. Conc. Pavt. 50'–62' = 2.85 Mi. Misc. Work 0.06 Mi. Cem. Conc. Pavt. (Acc. Rds.) = 0.56 Mi. Asp. Conc., Opt. (Serv. Rds.) = 1.82 Mi. 2 Hy. Seps. Comp. I-Beams 123.6' and 48'	$200,000 Plans $50	3,744,000
DISTRICT No. 10, M. E. Goul, District Engineer, Montauk Highway at Little East Neck Rd., Babylon, L. I., N. Y.						
Queens and Nassau	FARC 55-39	Conduit Blvd., Pt. 3 S.H. 1699A Project U-947(11)	1.81	Asp. Conc., Opt. R.C. Slab Bridge 21.2'	$85,000 Plans $15	1,554,000
Queens	FA HHE 55-1	Horace Harding Expressway, Section I (Contract 2) Project U-862(6)	1.65 (2.78) (Acc.)	9" Col. Cem. Conc. Pavt. 72' Wide = 1.30 Mi. Misc. Work = 0.35 Mi. Acc. Rd. Cem. Conc. Pavt. = 0.58 Mi. Serv. Rd. Asp. Conc. Pavt. = 2.20 Mi. 2 Hy. Seps. Comp. I-Beams 159' and 162.8' 2 Ped. Overpasses I-Beams 121.3' and 128.5' Pepavt. Exist. Hy. Sep. Struct.	$330,000 Plans $100	6,010,000
Queens	FA HHE 55-2	Horace Harding Expressway, Section II (Contract 3B) Project U-862(3)	1.53 (3.93) (Acc.)	9" Col. Cem. Conc. Pavt. 72' Wide = 1.18 Mi. Misc. Work = 0.35 Mi. Acc. Rd. Cem. Conc. Pavt. = 2.24 Mi. Acc. Rd. Asp. Conc. Opt. = 1.69 Mi. 2 Hy. Seps. Comp. I-Beam 106.7' and 111.4'	$285,000 Plans $100	5,187,000
Queens	FA HHE 55-3	Horace Harding Expressway, Section II (Contract 4) Project U-862(4)	0.69 (Acc.) (1.57)	9" Col. Cement Conc. Pavt. 72' Wide = 0.69 Mi. Acc. Rd. Cem. Conc. Pavt. = 0.13 Mi. Serv. Rd. Asp. Conc., Opt. = 1.44 Mi. 2 Hy. Seps. Comp. I-Beams 109' and 82.9'	$150,000 Plans $100	2,792,000

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts and Accounts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Laws, as set forth in "Instructions to Bidders."

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

JOHN W. JOHNSON
SUPT. OF PUBLIC WORKS

OFFICIAL PROPOSALS

Bids: July 6, 1955

Contract LT-190.001

ADVERTISEMENT
THE PORT OF NEW YORK AUTHORITY
LINCOLN TUNNEL
LINCOLN TUNNEL PARKING LOT

Sealed proposals for the construction of a vehicular parking area in the vicinity of the intersection of New Jersey Route 3 and the approaches to the Lincoln Tunnel, located in Bergen County, New Jersey, will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Wednesday, July 6, 1955, at which time said proposals will be opened and read in Room 1108.

Contract documents may be seen at the office of the Engineer of Materials of the Authority, Room 1112. Documents will be furnished upon deposit of $30.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $30.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt shall be delivered to Room 1112, where the documents will be furnished.

Those who have submitted a bid on the contract will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Donald V. Lowe, Chairman

New York, June 16, 1955

Bids: June 29, 1955

Pennsylvania Turnpike Commission
Harrisburg, Pennsylvania

NOTICE TO BIDDERS

Sealed proposals will be received by the Pennsylvania Turnpike Commission, through the Chairman, 11 North Fourth Street, Harrisburg, Pennsylvania, until 10:00 a.m. Eastern Daylight Saving Time, the 29th day of June 1955, and immediately thereafter will be taken to the Public Utility Commission's Hearing Room No. 1, North Office Building, State Capitol, Harrisburg, Pennsylvania, and immediately publicly opened and read aloud, for the following contract:

For the construction of superstructure, Turnpike Section 37AB, Hawk Falls Bridge, part of the Northeastern Extension of the Pennsylvania Turnpike in Carbon County, Commonwealth of Pennsylvania. This section being situated as follows:

Beginning at a point on the left descending bank of Mud Run, Carbon County at Turnpike Station 944 on the Turnpike centerline, thence in a northerly direction across Mud Run to Turnpike Station 953 on the Turnpike centerline, a distance of 0.170 mile.

The approximate quantities of the principal items are as follows:

Class A Concrete in Deck	1,515 cu. yds.
Reinforcing Steel	356,600 lbs.
Fabricated Structural Steel	2,772,000 lbs.
Bridge Railing	1,550 lin. ft.

For the construction of superstructure, Turnpike Section 37DE, Lehigh River Bridge, part of the Northeastern Extension of the Pennsylvania Turnpike in Carbon and Luzerne Counties, Commonwealth of Pennsylvania. This section being situated as follows:

Beginning at a point on the left descending bank of the Lehigh River at Turnpike Station 1445 in Carbon County on the Turnpike centerline, thence in a northwesterly direction across the Lehigh River to Turnpike Station 13 in Luzerne County on the Turnpike centerline a distance of 0.113 mile.

The approximate quantities of the principal items are as follows:

Class A Concrete in Deck	1,202 cu. yds.
Reinforcing Steel	294,000 lbs.
Fabricated Structural Steel	1,500,000 lbs.
Bridge Railing	1,249 lin. ft.
Fabricated Structural Manganese Steel	293,000 lbs.

Copies of plans, specifications, and other contract documents are on file and open to public inspection on 9 June 1955, at the office of the Pennsylvania Turnpike Commission located at Harrisburg, Pennsylvania. Plans, specifications, and other contract documents will not be available before this date for inspection or for mailing to prospective bidders. Copies of Specifications for grading, drainage, paving and structures may be purchased from the Pennsylvania Turnpike Commission for the sum of five (5) dollars per copy.

Plans, and contract documents, for this section, exclusive of specifications, may be obtained from the Commission upon deposit of twenty (20) dollars for each set. No refund will be made for plans returned unless the project is withdrawn from letting by the Pennsylvania Turnpike Commission.

Remittances are payable by check or P.O. money order to the Pennsylvania Turnpike Commission and must accompany requests for specifications, drawings and contract documents.

The character and amount of bid security to be furnished by the bidder is stated in the Instructions to Bidders.

The Commission reserves the right to waive any informalities in or to reject any or all bids.

No bids may be withdrawn for thirty (30) days after the scheduled closing time for receipt of bids.

PENNSYLVANIA TURNPIKE COMMISSION
James F. Torrance
Secretary and Treasurer

Harrisburg, Pennsylvania
1 June 1955

Bids: June 22, 1955

Washington Suburban Sanitary Commission
Contract No. 1578-W

FURNISHING AND DELIVERING FIRE HYDRANTS

Sealed proposals for furnishing and delivering thirty (30) 4½-foot; fifty (50) 5-foot; sixty (60) 5½-foot; twenty (20) 6-foot; ten (10) 6½-foot; twelve (12) 7-foot; ten (10) 7½-foot and eight (8) 8-foot fire hydrants will be received in the office of the Purchasing Agent, Room G-11, of the Washington Suburban Sanitary Commission, 4017 Hamilton Street, Hyattsville, Maryland until 10:30 A. M., Eastern Daylight Saving Time, Wednesday, June 22nd, 1955 at which time and place they will be publicly opened and read.

Specifications may be obtained from S. Z. Salsberry, Purchasing Agent of the Commission, Hyattsville, Maryland.

T. Earle Bourne, Chairman
Frank L. Hewitt, Jr., V-Chairman
J. Norman Ager
James B. Bland
Willard A. Morris
L. S. Ray
Commissioners

Attest:
James B. Parkhill
Secretary-Treasurer

Bids: June 28, 1955

State of New Jersey
State Highway Department
Trenton

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

ROUTE 6 (1927) RT. U.S. 46 (1953), SEC. 34

Route 6 (1927) Route U.S. 46 (1953), Section 34, from Hackettstown to Drakestown, Dualization, in the Townships of Washington and Mount Olive, Morris County. Federal Project No. F-21(2). Length 2.210 miles. The principal items of work are:

Estimated:

45,980 cu. yds.	Roadway Excavation—Unclassified
94,134 cu. yds.	Borrow Excavation
18,496 cu. yds.	Subbase
18,503 sq. yds.	Stone Base Course 6" thick
18,639 sq. yds.	Pen. Mac. Surface Course H.A. 2" thick
3,391 sq. yds.	Pavement Type MA-BC-2, 3" thick
31,387 sq. yds.	Conc. Pavement Surface, Rein. 8" thick
134 sq. yds.	Bridge Approach Slabs, Rein. 18" thick
6,388 lin. ft.	Rein. Conc. Pipe, various sizes
2,433 lin. ft.	Corrugated Metal Culvert Pipe, various sizes
80	Inlets and Manholes
23,910 lin. ft.	White Concrete Vertical Curb
10,820 lin. ft.	Beam Guard Rail
4,479 cu. yds.	Concrete in Structures
31,055 lbs.	Reinforcement Steel in Structures

Bids for the above will be received at the office of the State Highway Department, in the CAFETERIA, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J., on Tuesday, June 28, 1955, at NINE o'clock (9:00 A.M.—EASTERN STANDARD TIME), TEN o'clock (10:00 A.M.—DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plan and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Project" authorized by the provisions of Title 27 of the Revised Statutes of New Jersey and supplements and by P. L. 413, 82nd Congress, and is to be performed in accordance with the "Required Provisions= Federal-Aid Contracts" of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications. The attention of bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all common labor employed on this contract shall be $0.75 per hour. The minimum wage paid to all intermediate grade of labor employed on this contract shall be $1.00 per hour. The minimum wage paid to all skilled labor employed on this contract shall be $1.50 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans and supplementary specifications will be furnished upon payment of a fee of FIFTEEN DOLLARS ($15.00) for each set upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J., with a check drawn to the order of the State Highway Department. A charge of $5.00 will be made for supplementary specifications unaccompanied by construction plans. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by the following documents: (1) a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500. nor more than $20,000.; (2) a proposal bond for a sum of not less than fifty percent (50%) of the total price bid for the project; (3) a financial statment (Part 1 of the Prequalification Questionnaire); (4) a plan and equipment statement (Part 3 of the Prequalification Questionnaire); and (5) a Non-collusion Affidavit executed in duplicate; and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed:
STATE HIGHWAY DEPARTMENT
A. Lee Grover, Chief Clerk

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4455) will be received at Palisades, Idaho, until July 7, 1955, for furnishing labor and materials for Surfacing and Structures for Completion of Relocated Idaho and Wyoming State Highways, U.S. Nos. 26 and 89; and Construction of Indian Creek Detour Road, Palisades Reservoir, Palisades Project, Idaho. Location near Palisades, Idaho and Alpine, Wyoming. Principal items are 15,100 cu. yds. excavation for roadways; 20 miles roadway reconditioning; 99,000 tons crushed gravel base material; 32,000 tons plant-mix bituminous surfacing; 2,000 tons liquid asphalt; and other work. Completion time 800 days. For particulars, address Bureau of Reclamation, P. O. Box 937, Boise, Idaho; or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

OFFICIAL PROPOSALS

Bids: July 12, 1955

Power Authority of the State of New York

ADVERTISEMENT FOR PROPOSALS
FOR
ALTERATIONS AND REPAIRS TO THE MASSENA-TAYLORVILLE TRANSMISSION LINE, NEW YORK

NOTICE TO CONTRACTORS: The POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for the Alterations and Repairs to the Massena-Taylorville Transmission Line, New York, in the following ways:

(1) If brought in person on the day of receiving bids, until 2:30 P. M. Eastern Daylight Saving Time on the 12th day of July, 1955, 270 Broadway, Hearing Room C on the 6th Floor New York, New York.

(2) Im mailed in, until 2:15 A.M. Eastern Daylight Saving Time on the 12th day of July, 1955, at the Authority's office, 270 Broadway, Room 1300, New York 7, New York.

The proposal will be publicly opened and read aloud at the time and at the address given in (1) above.

Bids will be entertained for furnishing the equipment and services and performing the work in accordance with the bidding schedule. Completion of the work will be required on or before January 1, 1957.

Plans, specifications and Proposal Forms for the work will be on file in the Authority's office and in the offices of the Engineer, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts, may be inspected by prospective bidders during office hours, and may be obtained from the Power Authority of the State of New York, 270 Broadway, Room 1300, New York 7, New York, upon application and prepayment of a fee of ten ($10.00) dollars per initial set of contract drawings and five ($5.00) dollars per set for additional sets, no part of which will be refunded. Two sets must be returned with each bid.

Bids must be made in duplicate upon the Proposal Forms included in and bound with the Contract Documents. Each proposal must be accompanied by a draft or certified check payable to the order of the Power Authority of the State of New York for the sum of $50,000.00.

The right is reserved to reject any and all bids.

W. S. CHAPIN,
GENERAL MANAGER

Bids: July 12, 1955

Contract LT-160.020

ADVERTISEMENT
THE PORT OF NEW YORK AUTHORITY
LINCOLN TUNNEL—THIRD TUBE
NEW YORK APPROACH
SECTION NO. 2

Sealed proposals for the construction of the portion of the approach roadway system south of West 34th Street in Manhattan for the Lincoln Tunnel, including the Third Tube, will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y. until 2:30 P.M. on Tuesday, July 12, 1955, at which time said proposals will be opened and read in Room 1108.

Contract documents may be seen at the office of the Engineer of Materials of the Authority, Room 1112. Documents will be furnished upon deposit of $50.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $50.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt shall be delivered to Room 1112, where the documents will be furnished.

Those who have submitted a bid on the contract will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Donald V. Lowe, Chairman

New York, June 16, 1955

OFFICIAL PROPOSALS

Bids: June 30, 1955

Sewers and Force Mains

City of Tampa, Florida

Sealed proposals for construction of Intercepting and Trunk Sewers and Force Mains, will be received at the regular meeting place of the Board of Representatives, City Hall, Tampa, Florida, until 2 P.M., E.S.T., June 30, 1955, there to be publicly opened and read aloud.

The approximate quantities of the principal work involved are as follows:

Div. XB6a—Bayshore Intercepting Sewer
7,165 Lin. Ft. 30 and 27-inch R. C. Pipe Sewers and 1,525 Lin. Ft. 21-inch V. C. Pipe Sewers

Div. XC8 —Ballas Point Trunk Sewer
7,115 Lin. Ft. 18, 15 and 12-inch V. C. Pipe Sewers

Div. XC9 —Manhattan Trunk Sewer—North
3,115 Lin. Ft. 30 and 27-inch R. C. Pipe Sewers and 3,460 Lin. Ft. 24 and 21-inch V. C. Pipe Sewers

Div. XF7 —Force Mains
2,320 Lin. Ft. 18, 16, 8 and 6-inch Cast Iron pipe Force Mains.

Plans and Contract Documents for the work may be examined and obtained from the offices of the Bureau of Sanitary Sewers, 6th Floor, City Hall, Tampa, Florida, and from the offices of Greeley and Hansen, Engineers, 220 South State Street, Chicago 4, Illinois. A deposit of $25.00 is required for each set of contract documents covering the four divisions.

City of Tampa, Florida
By Curtis Hixon, Mayor

Dated June 1, 1955

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4449) will be received at Palisades, Idaho, until July 12, 1955, for furnishing labor and materials for Earthwork, Structures, and Surfacing for Relocation of Forest Service Road—McCoy Creek to Salt River, Palisades Reservoir. Location near Alpine, Wyoming in Bonneville County, Idaho, and Lincoln County, Wyoming. Principal items are 2.2 miles of linear grading for roadway; 7.4 miles of constructing roadway; 1,912 linear feet of furnishing and laying 15-, 18-, and 24-inch diameter culvert pipe; and other work. Completion time 550 days. For particulars, address Bureau of Reclamation, P. O. Box 937, Boise, Idaho; or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4346) will be received at Phoenix, Arizona, until July 19, 1955, for furnishing labor and materials for Additions to Wellton-Mohawk Switchyard, Parker-Davis Project, Arizona-California-Nevada. Location near Yuma, Arizona. Principal items are 525 cu. yds. excavation; 185 cu. yds. concrete; 54,000 pounds erecting steel structures; constructing, removing, and salvaging 34.5-kv shoo-fly, lump sum; converting 34.5-kv double circuit line to 161-kv single circuit line, lump sum; converting 34.5-kv approaches to Wellton-Mohawk Switchyard to 161-kv operation, lump sum; and other work. Completion time 220 days. For particulars, address Bureau of Reclamation, Boulder City, Nevada; P. O. Box 392, Phoenix, Arizona; or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Invitation No. DS-4450) will be received at Denver, Colorado, until July 26, 1955, for furnishing two (2) 16,750-horsepower, 180-rpm, vertical-shaft, hydraulic turbines, including spare parts, tools and equipment, for Glendo Power Plant, Glendo Unit, Oregon Trail Division, Missouri River Basin Project, Wyoming. Delivery is desired within 720 days. For particulars, address Bureau of Reclamation, Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

EMPLOYMENT

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

Estimator, for firm doing extensive sewer, watermain, treatment plant, heavy construction. Must be graduate engineer or have extensive engineering background, with ability to obtain price and job information. Permanent position for qualified applicant. P-6074, Engineering News-Record.

Construction Foreman for firm engaged in extensive sewer, water main and treatment plant facilities. Permanent position in N. Y. State area. Only qualified applicants with broad experience. P-6595, Engineering News-Record.

Wanted: Asphalt plant superintendent for new high output plant permanently located and now operating in growing southern city. Must know asphalt mixes and have a good mechanical know-how. P-6649, Engineering News-Record.

Chief Draftsman for old established structural fabricating shop in Central Indiana. 20,000 tons per year. Tier and mill building and bridge experience desirable. Write detailed summary of experience and salary expected. P-6556, Engineering News-Record.

Construction Supt; Civil Engineer graduate preferred for sewers, watermain, treatment plant work. P-6698, Engineering News-Record.

Construction Engineer for general contractor on engineering projects. P-6699, Engineering News-Record.

Construction Superintendent for General Contractor, New York-New Jersey area. Write giving resume of experience and salary requirements. P-6683, Engineering News-Record.

Wanted: Experienced estimator for building contractor located in Southern Connecticut. P-6708, Engineering News-Record.

Young man, architectural or construction background, to promote building products for basic metal trade association. Salary $5,000 to $7,000 depending on qualifications. Headquarters NYC, some travel. P-6707, Engineering News-Record.

Structural Steel Draftsman and estimator must have minimum of 5-10 yrs. experience in structural steel detailing and estimating. Starting salary $5-7,000. Good future with structural steel fabricating company in Ohio. P-6650, Engineering News-Record.

Draftsmen and designers experienced structural steel and concrete. Reply should include summary of experience and salary requirements. Lakeland Engineering Associates, Inc. P. O. Box 495, Lakeland, Florida.

Layout Draftsman-Minneapolis manufacturer of prefabricated concrete forms is looking for a man qualified to layout form work, must have experience in reading construction blueprints. Waco Manufacturing Company, 3565 Wooddale Avenue, Minneapolis 16, Minnesota.

Estimator—Experienced, chemical, refinery and industrial installations. Age 35 to 40. Enclose picture, references, salary requirements and resume of experience. Los Angeles area. P-6587, Engineering New-Record.

Wanted: Instructor in engineering drawing and descriptive geometry. Salary $3600 for 9 month period. Dept. of Engr. Drawing, University of North Dakota, Grand Forks, North Dakota.

(Continued on page 144)

Attention . . .

EMPLOYMENT ADVERTISERS

Effective with the first July issue, a new section will start in ENGINEERING NEWS-RECORD. We will head this section: EMPLOYMENT OPPORTUNITIES. All Displayed Employment Opportunity ad ertising will be placed in this new section, with the exception of those advertisers who contract for run-of-book position. New advertisers will be billed at the transient rate of $24.25 unless on contract. Contract rates furnished on request. Advertisements are subject to Agency Commission.

HIGHWAY ENGINEERS

Designers, Detailers and Draftsmen for office work on highways and expressways. Long-term projects. Desire experience or training including alignment and profile computations, geometric design of interchanges and associated work.

Employee Benefit and Retirement Plan, paid vacations and holidays, sick leave. Modern, air conditioned offices in downtown St. Louis. Please write fully to or inquire at

SVERDRUP & PARCEL ENGINEERING CO.

1625 Eye Street, N. W.
Washington 6, D. C.

1134 Locust
St. Louis 1, Mo.

EXPERIENCED HIGHWAY CONSTRUCTION PERSONNEL

Large Nationally known Highway Construction Company, headquartering in Upper Midwest, with operations, branch offices and equipment yards located throughout the country, is looking for experienced engineer-estimator on highway construction. Preferably young man. Must be ambitious and willing to work. Considerable travel required.

Also several Top Grade Superintendents and General Foremen experienced in Highway Grading and/or Paving and Bridge Construction to work under regional or project managers. Good Salaries and future participation pension and Profit Sharing Plans and Stock Ownership for right men.

P-6623, Engineering News-Record, 330 W. 42 St., New York 36, N. Y.

FLORIDA

State Road Department Highway Planning Program

Limited number permanent positions open for experienced highway planning personnel for work in following classifications and pay scales.

Senior Designers	6000-7200
Traffic Engineers	6000-7200
Planning Engineers	6000-7200
Cartographer	5300-6600
Designers	4800-6000
Draftsmen	3600-4800

Only those with excellent qualifications and experience need apply. Experience necessary in one or more of following classifications: Urban street design; expressway design; rural highway design; comprehensive traffic studies and analysis; engineering cost analysis; long range highway planning; drafting pertaining to contract plan preparation for rural and municipal highway projects.

Positions open in Tallahassee, Chipley, Bartow, Lake City, Fort Lauderdale, DeLand and Daytona Beach. Excellent working conditions; retirement plan, sick leave with pay, paid vacations, hospitalization plan available. Apply to State Highway Engineer, State Road Department, Tallahassee, Florida.

ESTIMATOR

Expanding Northern New York general construction corporation needs graduate engineer as estimator. Seeks young man with one or two years experience as estimator or engineer with two or three years field experience in building construction. Position now open. Give full resume; strictly confidential.

P-6711 Engineering News-Record
330 W. 42 St., New York 36, N. Y.

ENGINEERS

Foreign Service

Graduate Chemical, Mechanical, and Electrical Engineers with minimum of 5 years' experience. For specialized assignments commensurate with qualifications in various phases of project and process engineering. Write giving full particulars regarding personal history and work experience. Please include telephone number.

Recruiting Supervisor, Box 30

ARABIAN AMERICAN OIL COMPANY

505 PARK AVENUE, NEW YORK 22, N. Y.

ASSISTANT CHIEF ENGINEER

Guam Project

Experienced on large industrial type buildings and related utility projects. Graduate Engineer with at least 10 years' experience required.

Write, giving detailed account of experience, education, etc.

BROWN-PACIFIC-MAXON

"Guam" Contract NOy-13931
P. O. Box 3316, Rincon Annex
San Francisco "19"—Calif.

For immediate employment

Resident Engineer for 1955 construction season to supervise all phases of construction of earth fill dam.

Also Soils Engineer to supervise soil testing and control of embankment compaction. Location, Northwest Pa.

Send complete outline of experience, date available and salary desired in first letter to:

Gannett Fleming Corddry & Carpenter, Inc.
Box 366, Harrisburg, Pa.

DESIGN ENGINEERS

Permanent opportunities for qualified engineers experienced in design of:

STRUCTURAL STEEL
REINFORCED CONCRETE
HEAVY MACHINES

Applicable to design of Blast Furnaces, Ore Beneficiation Plants and similar heavy structures

also

PIPING DESIGN AND LAYOUT

Applicable to Oil Refinery and Petro-Chemical Plant design

TOP EARNINGS—PENSION PLAN

MANY OTHER BENEFITS

Please contact or write:

Edward A. Kolner
ARTHUR G. McKEE & CO.
2300 Chester Ave. Cleveland 1, Ohio

STRUCTURAL ENGINEER

Structural steel designer and estimator for industrial buildings and miscellaneous steel structures. Applicant should be graduate engineer, preferably 35-45 years old, with a minimum of 5 years of actual structural steel design experience. Permanent employment with top pay, paid vacations, group insurance plan, pension plan. Excellent opportunity. Location is in Mid-West. Employer is nationally known, well established steel fabricator.

Reply fully, giving resume of experience, education, age and salary requirements to

P-6749, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

FABRICATED STRUCTURAL STEEL AND PLATE ESTIMATORS

Large Southern fabricator has openings for fabricated structural and/or plate estimators familiar with field erection costs. Preferably engineering graduates with two years practical experience. Forward resume with salary expected to:

P-6702, Engineering News-Record
330 West 42nd Street, New York 36, N. Y.

All replies will be confidential

THE AUSTIN COMPANY

Offers Opportunities to Qualified Engineers and Draftsmen

Positions are open to capable engineers and draftsmen who can design and/or prepare plans and specifications for complete industrial plants, all related structures, and building equipment falling within the following catagories:

DESIGNERS—Office buildings, laboratories, and industrial buildings. Positions require those possessing vision and creativeness.

STRUCTURAL—Industrial buildings and miscellaneous structures of steel and reinforced concrete.

MECHANICAL—Heating, air conditioning, ventilation systems, process piping, conveying systems, plumbing, sewer, and sprinkler systems.

ELECTRICAL — Industrial lighting and power distribution and controls.

DETAILERS—Structural steel fabrication for industrial buildings.

Assignments are in connection with our long-established offices located on the East coast and Midwest areas. Desirable working condition, established vacation and sick leave plans, also paid holidays.

Full particulars as to education, experience, and compensation desired should be given in first letter.

NATIONAL HEADQUARTERS
16112 Euclid Ave. Cleveland 12, Ohio

DEPUTY BUILDING INSPECTION SUPERVISOR: Graduation from an accredited four years college with degree in structural or architectural engineering. Seven years of experience in the structural design of buildings and some experience in examination of plans and specifications of building projects and applications for building permits. Salary $5772-$6812 per year.

ARCHITECT I: Graduation from a college or university of recognized standing with a degree in architecture and 2 years experience in architectural planning, design or drafting. Salary $4628-$5460 per year.

Complete details by writing to:

DIRECTOR OF PERSONNEL
Municipal Building, Hartford, Conn.

PROJECT ENGINEER

Graduate mechanical engineer with 10 years experience in process industries, preferably food or chemical, for plant engineering division of large national food company. Design and installation of new facilities. Under 38 years of age. Salary commensurate with experience. Submit detailed resume.

P-6787, Engineering News-Record
330 W. 42nd St., New York 36, N. Y.

ENGINEERS — TECHNICIANS

Experienced in Concrete, Soils mechanics, Asphalt paving, Geology and Highway engineering. Also Cement and Asphalt Chemists.

LARGE INDUSTRIAL AND HIGHWAY PROJECTS

Long term employment and advancement opportunities, paid vacations, hospitalization and insurance.

Please submit complete resume of experience, education, earliest date available and salary requirements.

TOLEDO TESTING LABORATORY
1810 North 12th Street — Toledo 2, Ohio

EQUIPMENT DISTRIBUTORS AND DEALERS

We are looking for well-established manufacturers' agents, distributors and dealers who are in close contact with users of earth-moving equipment and have the time to devote to a profitable line of hard-surfacing alloys. Our company is one of the leading manufacturers in this field. There are several areas open for representation, distributor or dealer arrangement on an attractive basis. Write full details of your present products and territory coverage to

RW-6769, Engineering News Record
330 W. 42 St., New York 36, N. Y.

CONSTRUCTION EQUIPMENT ENGINEERS

Graduate engineers with minimum 5 years' experience designing, selecting, specifying and/or supervising operations of construction equipment such as crawlers, rubber-tired tractors, shovels, cranes, air compressors, welding machines, pumps, mixers, spreaders, fork lifts, etc.

To consult with manufacturers and suppliers on selection and modification of the above-mentioned equipment. For company's Equipment Engineering Division located in New York City. Salary good; liberal benefits.

Write giving full particulars regarding personal history and work experience. Please include telephone number.

Recruiting Supervisor, Box 57
ARABIAN AMERICAN OIL COMPANY
505 Park Avenue, New York 22, New York

SOILS ENGINEER

Scott & Wilson, Kirkpatrick & Partners, Hong Kong, Consulting Civil Engineers, invite applications from Soil Engineers to fill an appointment to their staff in Hong Kong and an appointment to the Resident Engineering Staff, for the construction of Kai Tak Airport, Hong Kong for which they are Consulting Civil Engineers to the Government of Hong Kong. Both appointments will be subject to a three-year tour of duty under contract and free passages, free accommodation, free medical and dental care will be provided for the successful applicants and their families.

Home leave with pay on the basis of two months' salary for each complete year spent in the Colony will be granted at the end of the tour, in addition to two weeks' annual local leave during the tour.

The salary for both appointments will be from 24,000 to 32,000 Hong Kong $ per annum according to qualifications and experience.

The construction of Kai Tak Airport comprises extensive land reclamation (12 million cubic yards), dredging, airfield pavement construction, road construction and ancillary works.

Applications in writing should be made to Scott & Wilson, Kirkpatrick & Partners, 47, Victoria Street, London, S.W. 1., giving full particulars of experience to date and copies of two recent references.

WANTED
BUILDING INSPECTOR
City of Aberdeen, South Dakota

Growing City requires full time plumbing, electrical, building inspection, plan checking, investigations. Desirable qualifications: graduate Civil Engineer or equivalent years in inspection and/or construction work. Attractive salary. Civil Service benefits. Contact CITY ENGINEER, MUNICIPAL BUILDING.

POSITIONS VACANT

(Continued from page 142)

Civil Engineer: Public Works Engineering with progressive municipality 65,000 population. Salary $4560-$4860-$5160-$5460-$5760. Starting salary contingent on experience. Write Personnel, Municipal Building, Hamilton, Ohio.

Jr. Architectural Engineer—Prepare architectural plans and specifications for industrial buildings. Experienced or recent graduate considered. Also architectural draftsman —some experience preferred. Details to Personnel Division, H. J. Heinz Company, P. O. Box 57, Pittsburgh 30, Pa.

Need top level sewer superintendent capable of assuming full charge of several gangs in the field. Must have full knowledge of sewer work, handling of men and the coordination of work to meet a tight completion date. Salary is open for the right man. P-6720, Engineering News-Record.

Architect—Qualified through training and experience to design churches, schools and other buildings. Give full information as to education, experience, salary requirements and when available. Location Eastern New York. P-6735, Engineering News-Record.

Engineers—Experienced in design and pre-preparation of plans for water works and sewerage systems and structural design. Advise education, experience, salary requirements and when available. Location Eastern New York. Reply P-6736, Engineering News-Record.

Wanted: Crusher Plant Foreman. Must have experience with Jaw, Roll and Cone Crushers. Write Winkelman-Tompkins-Jones, P. O. Box 273, Plattsburgh, N. Y. giving experience and salary requested. P-6740, Engineering News-Record.

Petrographer: Experienced in mineralogical and petrographic examination of cement, concrete and concrete aggregates. Write fully regarding experience, education, date available and salary required. Midwest location. Permanent. P-6770, Engineering News-Record.

Construction Estimator, must be experienced in industrial & governmental agencies. State age, maritial status, salary desired, experience, if will go out of town, photograph if possible. P-6790, Engineering News-Record.

General Construction Company, located in the Carolinas with capacity contracts on hand desires capable individual to participate financially and actively in management and ownership. P-6791, Engineering News-Record.

EMPLOYMENT SERVICE

Salaried personnel, $3,000-$25,000. This con-fidential service, established 1929, is geared to needs of high grade men who seek a change of connection under conditions assuring, if employed, full protection to present position. Send name and address only for details. Personal consultation invited. Jira Thayer Jennings, Dept. L, 241 Orange St., New Haven, Conn.

(Continued on opposite page)

(Continued from opposite page)

POSITIONS WANTED

Construction Executive, available as project manager, on large operation, chief estimator for large organization or in other executive position where scope warrants employment of top man, thoroughly experienced on all types of construction and in every phase of general contracting. PW-6635, Engineering News-Record.

Material Man—purchasing, expediting, receiving, storing. Tool rooms, warehouses. Age 58. 35 yrs. construction experience. PW-6621, Engineering News-Record.

Project Engineer—Registered engineer, age 38 married, BE '37, experienced in design and construction of highways, bridges, revenue bond projects. Excellent administrator. Presently employed. Desire to better position by change. PW-6674, Engineering News-Record.

Contractor's engineer estimator—age 52—30 years experience competitive bidding public work. Assume full responsibility for bid preperation and the usual G.C. office routine. Experienced includes most every type of structure and includes jobs up to 15000000- in sieg. Open for connection calling for top flight man. PW-6680, Engineering News-Record.

Soils & Materials Engineer, P.E., age 31, family, 10 years heavy construction airfields turnpikes. Exceptionally qualified. Fluent Spanish French. PW-6783, Engineering News-Record.

Supt. extensive experience on rock heavy blasting, open cuts shafts tunnels and earth moving. PW-6782, Engineering News-Record.

Field Engineer, 39 married, 12 years experience in highway, refinery, airport, municipal & AEC construction & surveys. Commercial pilot license. Minimum salary $130.00 week. PW-6771, Engineering News-Record.

General Foreman or construction foreman. 20 years experience in heavy construction subways, tunnels, road & bridge work. Sewers utilities, foundations. PW-6774, Engineering News-Record.

Civil Engineer, 27, BCE, MCE, completing 3 years commissioned service with U. S. Air Force in USAF Hospital construction. Last 1½ years on site as project officer for new 300/500 bed general hospital. Available 27 June. N. Y. area preferred. PW-6756, Engineering News-Record.

Draftsman—Structural, 3 years design drawing plus 1½ years reinforcing steel detailing experience. PW-6755, Engineering News-Record.

Const. supt. over 35 yrs. experience in all phases of construction will travel, reasonable salary. PW-6760, Engineering News-Record.

Engineering Draftsman, 7 years' experience municipal water filtration, sewage treatment plants, etc. Married, interested in relocating with consulting engineer. References. PW-6763, Engineering News-Record.

Arch't'l draftsman, struct. eng'r. Industrial bldgs. Prefer Central States. PW-6722, Engineering News-Record.

Construction Executive—Graduate C.E., 23 years experience, including job supervision, estimating, preparation and supervision of subcontracts. Also experience with consulting engineers. PW-6724, Engineering News-Record.

Construction Superintendent, or project manager. 25 years experience as a construction superintendent and project manager in heavy industrial construction. Especially experienced in oil refinery and chemical plant construction, as well as steel mill building, and government construction. Best references from previous employers, with excellent record of accomplishment. Available immediately. Reply to PW-6726, Engineering News-Record.

When Answering
BOX NUMBERS . . .

to expedite the handling of your correspondence and avoid confusion, please do not address a single reply to more than one individual box number. Be sure to address separate replies for each advertisement.

POSITIONS WANTED

Electrical Draftsman & Designer over 10 yrs. experience on design and installation of electrical facilities in plant construction, modernization and machine control. Married, age 34. Desires opportunity to utilize experience with progressive company. Will relocate. PW-6706, Engineering News-Record.

Construction Engineer, 26, MIT grad. Exp. in industrial constr. Navy CEC officer, 3 yrs. Desires permanent position with building contractor in East or South. J. F. Logan, 3019 S Buchanan, Arlington, Va.

Construction Engineer—Reg. Prof. Engr. C.E. grad. 20 years construction experience 12 of which as supt. of construction. Know equipment, estimating, job pushing, cost control. Experience about 70% heavy 30% industrial. Age 41. PW-6737, Engineering News-Record.

PART TIME WORK WANTED

Part Time work. Retired licensed structural engineer available for design, detailing and estimating. PTWW-6788, Engineering News-Record.

SELLING OPPORTUNITY WANTED

Manufacturers Agent seeks additional lines. Straight commission or jobbing basis. Excellent connections architects, contractors, eastern New York State. RA-6647, Engineering News-Record.

SPECIAL SERVICES

Wanted by construction supt-project mgr.- construction mgr. with years of proven work, with experience in: power plants, chemical plants, paper mills, blast furnaces, aluminum production mills, water treatment, highways, water & sewage systems, handling all fazes of job. Have complete organization available for: foundation-concrete structural steel-roofing & siding—mechanical installation-piping installation-office engineers, field engineer, payroll dept, cost engineer, purchasing agent. This organization is geared to handle several small projects or one large one—available July 15th, 1955. If you are interested in a top flight organization who has the know how please let me hear from you. SS-6677, Engineering News-Record.

A group of professors and engineers will undertake the design of structural buildings, highway bridges, foundations, etc. Complete work with design sheets and construction drawings can be produced fast and economically with latest methods of design. Prefer subcontract on an hour basis or per drawing basis. SS-6673, Engineering News-Record.

Errors, Omissions, & Neglect Insurance
For Engineers & Architects
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885 North La Salle St., Chicago 10, Illinois

LEARN ESTIMATING
Complete Building Estimators Course, also Building Labor Calculator for practicing estimators. Thirty-fourth year serving the building industry. For free trial and all particulars write:
TAMBLYN SYSTEM
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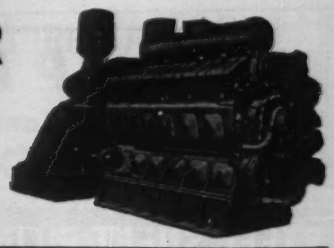

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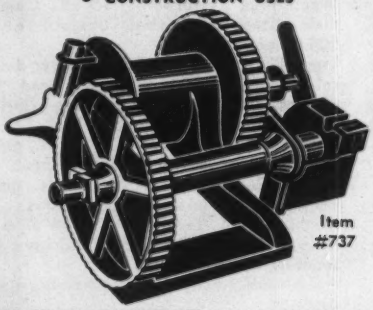

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EDITORIALS

More Regulation of Construction

MORE FEDERAL CONTROL over construction is inherent in the Supreme Court's decision that the work of constructing Algiers Lock near New Orleans comes under the Fair Labor Standards Act. That lock is on a new section of the Intracoastal Waterway. Heretofore, construction of new canals, railways and highways was considered by the courts as having so little effect on interstate commerce as to be outside of federal control. Repair work on facilities for interstate commerce such as dredging, on the other hand, has always been considered to be under the Fair Labor Standards Act.

But the question of whether all new construction on canals, railways and highways will hereafter be considered to be under that act appears to be left wide open by the Supreme Court's decision. In the Algiers Lock case it discarded the old "new-construction doctrine" because it found that the new canal on which the lock is located is being built to relieve congestion on the parallel section of the Intracoastal Waterway and so appears to have just as intimate connection with commerce on that waterway as would a dredging operation in the present channel.

Our guess is that the same kind of reasoning will be applied by the lower courts to most work that heretofore was considered to be outside the scope of the Fair Labor Standards Act. The end result will be more paperwork and higher labor costs for construction contractors.

Safety Is No Accident

THE REMARKABLE SAFETY RECORD thus far achieved on the Port of New York Authority's Lincoln Tunnel project (p. 42) is another demonstration of a fact well known—but too often ignored—by construction men: An effective safety program is a full-time job.

A safety program cannot be handled with the left hand of a job super whose right hand and mind are engaged with the myriad details of running a construction project.

Safety cannot be achieved by posting a few well-worn slogans, nor can it be achieved by a few lectures.

Safety cannot be achieved by an occasional bawling-out of some workman for an unsafe practice, or for not wearing proper clothing.

Safety on construction work can best be achieved by a carefully thought-out program, applied uniformly from one end of the job to the other, and from the day the first earth is turned until the last bit of work is completed. It comprises not only safe practices for the workers themselves—it must also comprise safe practice by the contractor, the engineer and the owner.

Primarily, safety is the responsibility of the contractor. It is not often deliberately shirked. But it is too often overlooked in the press of other matters. It's too easy to designate somebody as "safety engineer" and then pay no further attention to the problem—let alone to the basic matter of whether the "safety engineer" has either the time or the knowledge to carry out such a function properly.

The Port Authority's record to date is a fine example of what can be done through real determination to do a safety job, and careful planning of that job in every phase—from top level management to lowest level workman.

Cooperating for Better Concrete

IT IS INTERESTING TO NOTE that the concept of voluntary cooperative action to spur adoption of good practices in reinforced-concrete design and construction is spreading. A Detroit group has set up a Concrete Improvement Board, patterned along the lines of New York City's Concrete Industry Board. And there are signs that similar organizations are germinating in other cities.

The purpose of these groups is different from that of the engineering societies, such as the American Society of Civil Engineers and the American Concrete Institute, which also are concerned with improving the quality of concrete construction. Those societies make studies that ultimately lead to good-practice recommendations. However, these may or may not be followed in practice. The objective of the new groups is to push adoption of good practices and, if necessary, to supplement existing recommendations with enforceable codes of ethics and practice.

To some, the progress of the New York group, which started the movement, may seem disappointingly slow. But most actions involving cooperation of all segments of an industry advance slowly—as active members of the American Society for Testing Materials can verify—for an answer to many problems must be sought through compromise. Nevertheless, New York's CIB is moving ahead. Under the aegis of a newly acquired managing director, work has been accelerated on standards for testing laboratories and personnel and for ready-mixed concrete and the plants that produce it.

Yet to be taken up is the more difficult task of making certain that contractors are using recommended practices. Actually, the success or failure of the whole movement hangs on the effectiveness of this self-policing action, for the standards that have been set will have no value if not followed by all producers and users of concrete.

In seeking to enforce its standards, the New York board may be aided by rapid adoption of a similar program in other big cities. One board in one city might not be able to make such a program work, but several boards in several cities, working in close cooperation, might be able to develop effective procedures.

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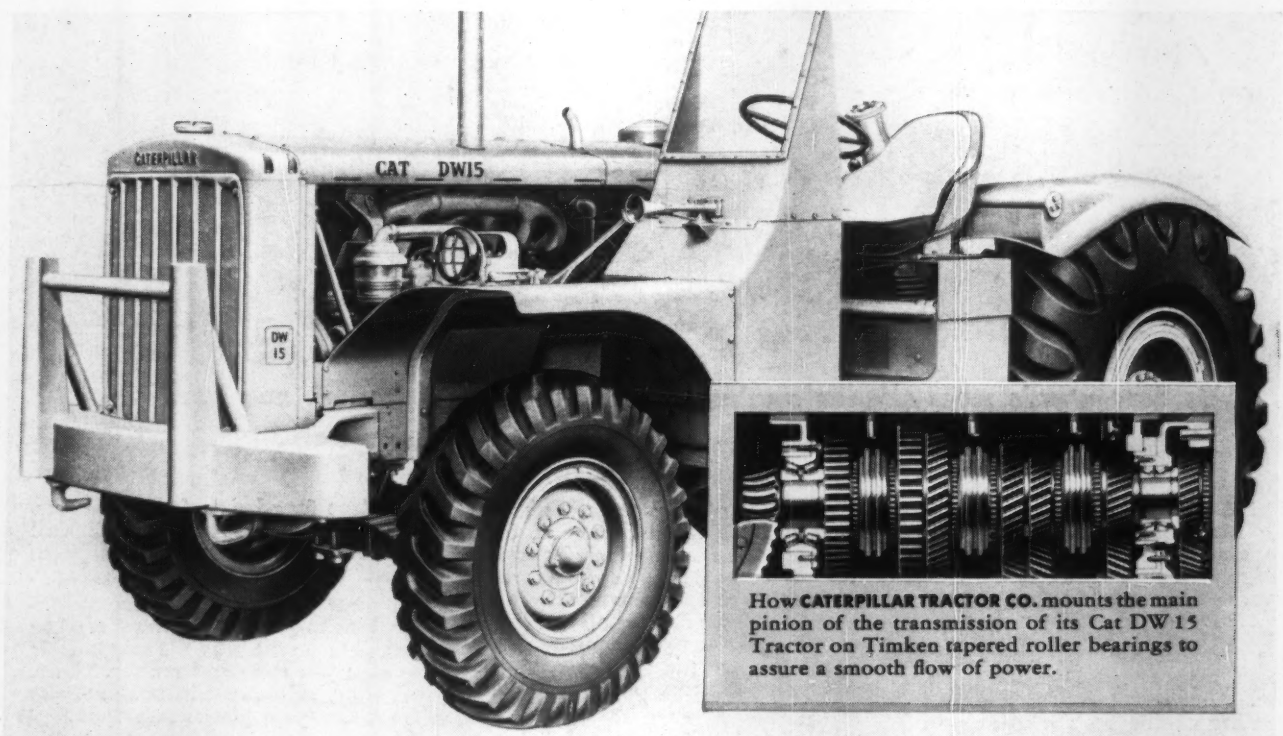

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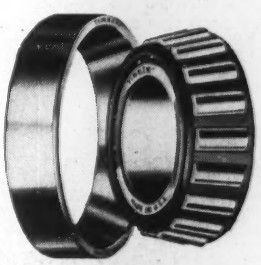

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